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PAUL PARKS
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FROM: Paul Parks, Secretary
Executive Office of Educational Affairs

SUBJECT: Draft Working Paper on Public Higher Education Planning

DATE: August 25, 1977

MEMORANDUM

Enclosed you will find a draft of a Working Paper on Public Higher Education Planning. This draft has been prepared for Governor Dukakis by my office in order to begin a public discussion of major policy issues affecting the state's institutions of higher education. The Governor and I hope that this discussion will lay a sound foundation by the end of September for the development of a preliminary state plan for public higher education.

Copies of this draft document are being widely distributed. We are sending copies to all public higher education trustees, chief executive officers, faculty and student leaders. Extra copies are being supplied to faculty and student leaders for distribution to colleagues at their respective campuses. In addition, we are sending copies to the state's legislative leadership and members of the joint House-Senate Education Committee and to organizations and citizens who have in the past shown a continuing interest in public higher education. Please feel free to duplicate your copy in order to permit distribution to others whom we may have overlooked. Additional copies may also be obtained by calling my office.

I want to underline that this is a preliminary draft for discussion only. I expect that there will be many comments, major criticisms and exceptions respecting the positions taken in this paper.

I hope that you will take the time to review carefully this draft working paper. Written comments on the issues touched on in the paper would be greatly appreciated. If you have questions or wish to discuss these issues, please call me or members of my senior staff.

You should be aware of one problem of central importance which has made the preparation of this document more difficult than it should have been. We do not have in Massachusetts a single, central and reliable source of data fully descriptive of our public higher education system. Accordingly, we have had to rely on data assembled from many different sources of varying reliability. We recognize the weakness of this data base and ask that you bring to our attention any factual inaccuracies in the attached presentation.

Many thanks for your interest.

:rlm
Enclosure

WORKING PAPER

ON

PUBLIC HIGHER EDUCATION PLANNING

DRAFT

**FOR DISCUSSION
PURPOSES ONLY**

August 17, 1977

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FOR DISCUSSION
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INTRODUCTION

Massachusetts has thirty public colleges and universities, divided into five segments or groups of institutions. The segments are: the University of Massachusetts, which has three campuses; Southeastern Massachusetts University; the University of Lowell; the ten state colleges; and the fifteen community colleges. These segments or groups have evolved over nearly a century and a half since the first building of the present Bridgewater State College was dedicated as Bridgewater Normal School by Horace Mann in 1846.

A trustee board made up largely of lay citizens appointed by the Governor governs each of the segments. State law grants a much greater degree of autonomy to these trustee boards than to other state authorities in making decisions for the institutions under their control. This autonomy is granted in recognition of the particular need of colleges and universities for exemption from constraints that are inappropriate to educational independence.

There are, of course, a number of conditions that limit independence. These include statutes which define the role and powers of each segment, the budgetary and appropriation process under which the executive and legislative branches allocate funds to the institutions, and the limited power of oversight of the state Board of Higher Education. By and large, however, the colleges and universities operate independently of the state as a whole and of each other.

Such independent operation suited the free-flowing period of growth, adaptation, and consolidation that began after World War II with the designation of the former Massachusetts State College at Amherst as the University of Massachusetts. The pace of growth and change accelerated sharply in the late fifties and continued beyond the sixties.

In 1958, the Commonwealth decided to start a new system — the regional community colleges — to provide opportunity for technical, occupational and associate degree education. The first community college opened in Pittsfield in 1960 with 152 students; the system now has fifteen colleges and over 25,000 full-time equivalent (FTE) students.* The ten state colleges, which had started as normal schools in the nineteenth century and evolved first into teachers colleges and later into general purpose colleges, were formed into a single statewide system under its own lay board of trustees in 1965. Also in 1965, the state completed establishment of Southeastern Massachusetts University on the base formed by two existing regional technical institutions. The University of Massachusetts Medical School accepted its first class of students in 1970. The last milestone in this post-war period of growth and change was the establishment, by legislative act in 1973, of the University of Lowell from two existing institutions, one a state college and the other a technological institution.

*Full-time equivalent enrollment is arrived at by dividing the number of total credit hours carried by full-time and part-time students by the credit load (e.g., 15 credit hours per semester for undergraduates) which constitutes full-time enrollment.

On the following pages are charts tracing the growth in students and state appropriations from 1960 to 1976. This growth was fueled by a number of factors: a booming economy that made funds available to meet the need for a better educated work force, an increasing college-age population, and the perception that higher education was the road to individual economic and social opportunity.

Growth required better coordination, a need that was reflected in the Willis-Harrington Act (Chapter 572 of the Acts of 1965), the most important piece of state educational legislation of the past two decades. A wide-ranging plan for the reform of elementary, secondary and higher education, the Willis-Harrington Act established the Board of Higher Education

to support, facilitate and recommend both: 1) clear functions for programs, for types of institutions, and for individual institutions of public higher education in the Commonwealth; and 2) efficient and effective coordination among them. It is anticipated that this Board will plan and support orderly and feasible expansion of the various kinds of institutions of higher education, the overall program for public higher education, and common educational services.*

Indeed, in proposing its master plan, the Willis-Harrington Commission listed coordination as its first goal:

Organization for coordination, for leadership, and for action within a master plan is the key to improvement in the program of all education in the Commonwealth. Without central coordination and a relationship established between standards and financial support, neither efficiency nor effectiveness can be assured.*

*"Report of the Special Commission Established to Make an Investigation and Study Relative to Improving and Extending Educational Facilities in the Commonwealth", June, 1965.

DRAFT

DIRECT STATE APPROPRIATIONS TO HIGHER EDUCATION INSTITUTIONS IN THOUSANDS OF DOLLARS

FOR DISCUSSION PURPOSES ONLY

<u>FISCAL YEAR</u>	<u>U. MASS.</u>	<u>STATE COLL.*</u>	<u>COMM. COLL.</u>	<u>S M U **</u>	<u>U. LOWELL*</u>
1960	\$ 9,444	\$ 5,168	\$ 83	\$ 819	\$ 1,705
1961	10,090	5,960	155	908	1,847
1962	11,422	6,649	551	974	2,033
1963	12,160	7,063	1,045	1,000	2,147
1964	13,708	8,378	1,332	1,115	2,552
1965	19,312	10,879	2,323	1,520	3,041
1966	22,585	12,332	3,492	1,897	3,385
1967	52,408	15,792	5,689	2,531	4,625
1968	35,721	20,157	9,381	3,289	5,828
1969	40,343	22,694	11,540	3,480	6,652
1970	45,838	26,236	14,178	3,952	8,485
1971	58,119	34,761	20,061	5,161	10,597
1972	65,008	39,397	24,723	5,626	11,312
1973	74,168	44,577	27,979	6,623	12,745
1974	85,560	51,388	34,494	8,807	13,881
1975	94,693	56,593	40,656	10,273	16,156
1976	100,080	54,898	39,917	9,866	15,804

* For ease of comparison, past appropriations to Lowell State College and Lowell Technological Institute are summed under the University of Lowell, which was not established until FY1976. Lowell State College appropriations are therefore not counted in the state college column.

** Past appropriations to New Bedford Technical Institute and Bradford Durfee Technical Institute are summed under Southeastern Massachusetts University.

HIGHER EDUCATION ENROLLMENTS *

IN THOUSANDS

<u>FISCAL YEAR</u>	<u>U. MASS.</u>	<u>STATE COLL.</u>	<u>COMM. COLL.</u>	<u>S M U</u>	<u>U. LOWELL</u>
1960	6,030	7,207	-0-	1,075	1,482
1961	6,371	7,833	151	1,124	1,701
1962	7,018	6,648	1,035	1,190	1,904
1963	7,450	7,063	2,025	1,300	2,110
1964	9,036	8,378	3,900	1,260	2,705
1965	9,520	10,832	3,650	1,275	2,450
1966	11,525	15,792	5,405	2,150	3,060
1967	12,835	20,157	7,930	2,250	4,120
1968	16,935	20,362	10,675	2,600	4,400
1969	19,235	21,823	13,275	2,700	4,840
1970	20,835	24,785	15,165	3,000	5,060
1971	24,876	27,182	20,300	3,500	5,660
1972	26,559	27,148	21,950	3,500	5,960
1973	26,729	29,187	21,126	3,780	6,670
1974	28,416	30,584	24,080	4,636	6,287
1975	30,707	27,305	27,249	5,007	6,352
1976	29,146	27,305	27,305	4,634	6,997

* Enrollment figures prior to FY1973 are taken from the Governor's budget recommendation of that year and reflect student headcount. Enrollment figures for FY1973 and FY1974 reflect actual full-time equivalent student enrollment in the fall semester. Enrollment figures for FY1975 and FY1976 reflect actual average full-time equivalent student enrollment in both semesters.

DRAFT

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HIGHER EDUCATION APPROPRIATION AND
ENROLLMENT TOTALS
FOR FISCAL YEARS 1960-1976
PURPOSES ONLY

<u>FISCAL YEAR</u>	<u>APPROPRIATION</u>	<u>ENROLLMENT</u>
1960	\$ 17,218,900	15,793
1961	18,960,400	17,180
1962	21,628,000	19,716
1963	23,415,900	21,989
1964	27,084,900	28,522
1965	37,073,600	28,225
1966	43,690,700	35,825
1967	81,043,700	43,125
1968	74,375,400	52,505
1969	84,707,600	60,412
1970	98,690,000	65,888
1971	128,698,200	79,121
1972	146,066,000	85,097
1973	166,087,500	85,453
1974	194,131,200	92,605
1975	218,370,100	99,899
1976	220,565,200	99,100

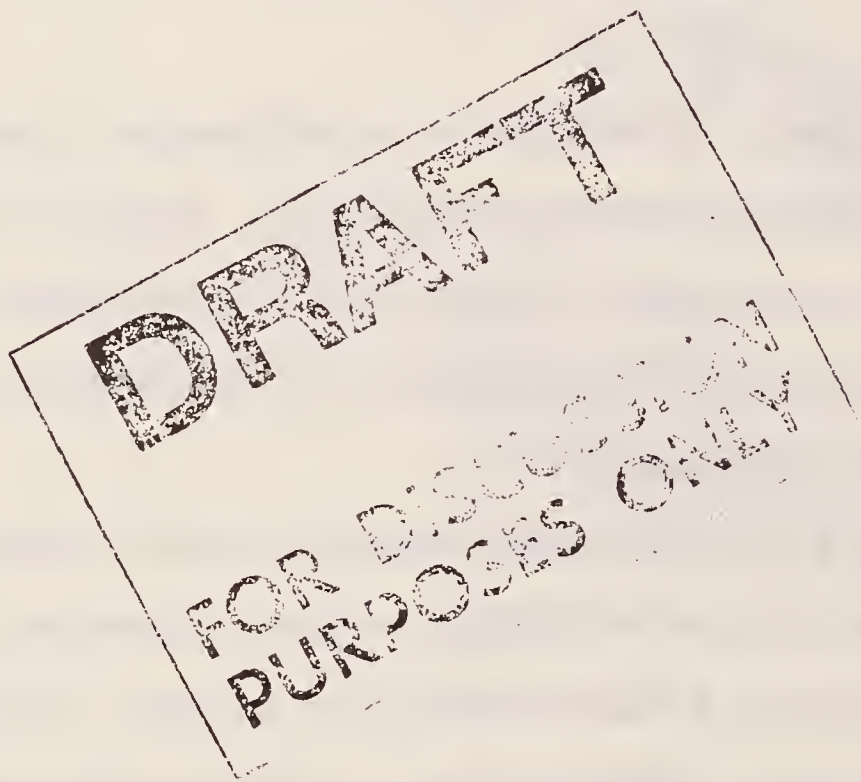
The gains achieved by the Willis-Harrington reform of public higher education are evident and incontestable. They are visible in the number of students and in the funds appropriated to their support, and in the vitality and integrity of lay control of public education. But many of the goals identified as central to higher education by the Willis-Harrington Commission, particularly its prime goal of coordination, have not been reached. More than thirteen years later, and amid greatly changed conditions and expectations, the Commonwealth is wrestling with the same problems of how best to achieve the effectiveness and quality of education that its citizens deserve.

Many of the issues remain unchanged — coordination, leadership, planning, organization, responsiveness, outreach. However, major assumptions and facts have changed. These changes emphasize the inadequacy of current mechanisms for forming and executing higher education policy in the Commonwealth.

The following paper is a preliminary working draft designed to raise questions about the future of public higher education in Massachusetts. These questions must be broadly argued, analyzed and resolved if public higher education is to achieve the goals of quality and public service, and if it is to remain a valuable economic resource to the state.

The paper is organized into four sections. The first section reviews changing patterns of demographic and economic conditions. The second section describes the problems and the need for change in the current public higher education system. The third section

discusses the advantages of a regional organization of higher education institutions. The fourth section presents recommendations for action.



I. DEMOGRAPHIC AND ECONOMIC CHANGE

The pattern of growth of the last two decades will not continue. Population statistics show unequivocally that there will be little or no need for additional educational spaces over the next twenty years. The economic facts suggest, though less clearly, that the Commonwealth cannot expect to devote major additional resources to higher education. In fact, the state will be able to justify current support levels only to the extent that the colleges and universities, working within new definitions of responsiveness and accountability, demonstrate a higher level of benefit to students and the state's economy.

A. STUDENT POPULATION TRENDS

In the next two decades the Commonwealth's higher education institutions will feel the impact of two fundamental shifts in the age composition of the population in Massachusetts: first, the 18-24 year-old age group will decline by about twenty-five percent or 150,000 people; and second, in contrast, the 25-44 year-old population will increase by about 390,000 people. The most probable result of these population shifts, which parallel national trends, will be a significant decline in full-time undergraduate student demand and enrollments by the traditional college-age population. These population shifts, however, can also provide an opportunity for increased service through full-time, part-time and continuing education for the growing adult population.

There are about 238,000 full-time undergraduate students enrolled in higher education institutions in Massachusetts, of whom about 95,000 are in public institutions directly supported by the state*. More than 190,000 or eighty percent of these full-time students are 18-24 years old. Because the pool from which these students are drawn will shrink by about twenty-five percent between 1980 and 1995, it is reasonable to predict that full-time enrollment in this age bracket will decline by the same percentage, barring major changes in participation rates. A twenty-five percent decline would translate to a loss of 47,500 full-time undergraduate students. Assuming that this loss would impact equally on public and private institutions according to their relative shares of total enrollment, full-time undergraduate student enrollments in public higher education will decline by as much as 19,000 from the present level of about 95,000 by 1995.

Nineteen thousand full-time undergraduate students are equivalent to the combined student bodies of nine community colleges or six state colleges. Unless countered by dramatic increases in college attendance rates by the 18-24 year-old population, or by equally dramatic increases in full-time or part-time undergraduate attendance rates by the growing adult population, the loss of this many students could force the Commonwealth to close down or consolidate several of its institutions.

* These are estimates extrapolating from the Higher Education General Information Survey reports on 1975-1976 opening fall enrollments and from a 1977 Senate Ways and Means Committee staff analysis of 1975-1976 enrollments in public institutions. The estimated full-time enrollments should not be confused with the figures used elsewhere in this paper for full-time equivalent enrollments, which incorporate the credit hours taken by part-time students.

The projected increase of 390,000 in the population aged 25-44 by 1995 may partially counterbalance enrollment losses in the 18-24 year-old group. But even at institutions where adults are enrolled in undergraduate programs in significant numbers, an increase in adult enrollments cannot be expected by itself to neutralize the loss in 18-24 year-old students. Only a very small percentage of the adult population traditionally enrolls in undergraduate degree-granting programs. Thus, using traditional assumptions, no more than 5000-6000 new adult students can be expected to enter college in a full-time or part-time capacity.

B. STABILIZATION OF ENROLLMENT AND SUPPORT

The first indications of the halt in growth are apparent now. Listed below are full-time equivalent enrollments for the last five fiscal years and budgeted enrollments as they appeared in the Governor's budget message for FY1977.

	<u>FY73</u>	<u>ACTUAL ENROLLMENTS</u>			<u>FY77</u>	<u>BUDGETED</u>
		<u>FY74</u>	<u>FY75</u>	<u>FY76</u>		<u>ENROLLMENTS</u>
						<u>FY77</u>
State Colleges*	27,148	29,186	30,584	31,078	30,064	31,045
University of Massachusetts	26,729	28,416	30,707	29,146	28,678	29,606
Southeastern Massachusetts University	3,780	4,636	5,007	4,634	4,838	4,785
Lowell State College*	2,878	2,534	2,510			
Lowell Technological Institute	3,792	3,753	3,842			
University of Lowell				6,997	6,869	7,280
Community Colleges	<u>21,126</u>	<u>24,080</u>	<u>27,249</u>	<u>27,305</u>	<u>28,098</u>	<u>29,185</u>
	85,453	92,605	99,899	99,100	97,747	101,887

*For ease of comparison, Lowell State College enrollment is given separately although the College was part of the State College System until FY1976 when it merged with Lowell Technological Institute to become the University of Lowell.

Actual 1977 enrollments are four percent less than the budgeted enrollments. More important is the actual enrollment reduction taking place over the last three years, an overall reduction of two percent from the actual enrollments of FY1975. Community College enrollments have risen three percent. The new University of Lowell has an enrollment eight percent greater than its two predecessor colleges. State college enrollments have declined almost two percent. Enrollments have declined more than six percent at the University of Massachusetts and three percent at Southeastern Massachusetts University.

Other figures show that this enrollment decline is likely to continue. The University of Massachusetts at Amherst in July reported a decline of about twenty-four percent in applications for admission for September 1978 from September 1977. At the University of Massachusetts at Boston, the decline in applications reported in July was about thirty-nine percent. In July 1977, the New England Board of Higher Education reported that eleven of the fifteen community colleges and five of the ten state colleges had vacancies for September 1978. Vacancies were also reported at the University of Massachusetts at Boston, Southeastern Massachusetts University, and the University of Lowell.

Moreover, although the funds appropriated for higher education have continued to rise, the net state operating costs (maintenance appropriation minus revenue collected) have declined. Additional revenue from tuition has more than counterbalanced appropriation

increases for FY1977, with the result that in FY1977 tuition revenue provided seventeen percent, the highest percent ever, of the state's operating expenditures for higher education. Operating expenditures, as mentioned earlier in this report, do not provide a full picture of state costs because they exclude such items as capital outlay, insurance, and retirement costs. Operating costs, however, represent the major and directly controllable element of state support; a decline in the net state share of these costs is significant as an indication of a change in the level of state support extended for higher education.

C. POLICY IMPLICATIONS

Student population trends and their implications for enrollment and state support make the next few years a watershed for higher education. They present the Commonwealth and its colleges and universities with the need for major, long-range policy decisions that cannot be made by the higher education community itself. The existing relationship, formed by statute and policy, between the Commonwealth and its institutions must be redefined because the conditions and assumptions of the future are not those of the past.

These demographic changes can produce either an excess in higher education capacity or an opportunity to meet previously unfulfilled demand — from the fifty percent of Massachusetts high school graduates who now do not go on to postsecondary education, or the growing numbers of adults interested in postsecondary education services. In either of these cases, however, the nature of the demand will be different. Its successful satisfaction will require new styles in teaching, organization and operations.

The Commonwealth has always been on the cutting edge of economic change as the developer of ideas and technologies that are often only fully exploited elsewhere — e.g., research and development for space exploration. If it is to find a strong economic future in the services sector and in high technology industries, Massachusetts must develop an adaptable and sophisticated work force that values its own skills and is able to find economic opportunity and work fulfillment in the market place. Education must be of a quality that provides citizens with the skills, insight and understanding to live in, enjoy, and contribute to a complex society. Education must also be responsive to actual and foreseeable job opportunities, and, in order to be available to all those in need, it must meet reasonable standards of economic efficiency and effectiveness.

Higher education has been a traditional path to personal and economic development. Given their promise for excellence and the scale of human and capital resources devoted to them, the public higher education institutions may have the presumptive leadership role for such development in the future. As they seek to exercise their leadership, however, they will be tested by competition from the private sector and other public institutions, including local and regional school committees, on such criteria as cost, accountability, quality and responsiveness.

II. REQUIREMENTS FOR CHANGE

The purpose of this section is to describe the major characteristics of the public higher education system. The section addresses problems of statewide coordination, organization and control, program assignment and duplication, internal management, policies, access and cost, and budgeting. The descriptions are problem-oriented, looking at how the system meets present needs and future requirements. They point out significant weaknesses and inconsistencies. This emphasis on the problems, however, should not obscure the promise of the public higher education system. The root of the problem is that there is no center to our higher education system. Individual institutions and segments have the power and authority to address problems inside their own walls. Voluntary cooperation between boards helps to fill the vacuum but it will always fall short of our need to avoid such problems as inconsistencies and duplication within and across segments, excessive or inadequate response to student demand and need, and inequitable administration and faculty work assignments and conditions.

A. COORDINATION

The division of public higher education into five segments limits the ability of each of the five governing boards to respond successfully to the challenges of demographic and economic change. Each board sees and controls only a part of the whole. Under these

circumstances, statewide planning, leadership and coordination for and among the segments become essential. Recognition of this need by the Willis-Harrington Commission led to the creation in 1965 of the Board of Higher Education. However, weaknesses in the Board's charter and the traditional independence of the governing boards have combined with a lack of imaginative and aggressive exercise of statutory authority to render the Board ineffective in its intended role as the Commonwealth's planning and coordinating agency.

The general responsibilities of the Board of Higher Education are defined by statute (Section 1D, Chapter 15, Massachusetts General Laws) in the following terms:

- support, facilitate, and delineate functions and programs for public institutions of higher education in the Commonwealth or segments of such institutions;
- allocate to them the responsibility and autonomy to discharge such functions and programs;
- plan and develop efficient and effective coordination among them;
- delineate changes in the functions of the several institutions and segments of public higher education;
- promote the best interests of all public higher education;
- plan and support orderly and feasible expansion of each segment of public higher education and of public higher education as a whole;
- approve plans for the orderly growth of public higher education as a whole and of each of its several segments;
- collect and maintain relevant data.

These general assignments of responsibility are entirely appropriate, although the emphasis on growth and expansion is no longer in keeping with the needs of higher education. Unfortunately, however, the

statute provides no criteria to guide the Board in the exercise of its responsibilities and leaves unclear the relationship between the Board's authority and that of the segments. This ambiguity appears to have contributed significantly to the Board's ineffectiveness. In addition, five of the twelve voting members of the Board of Higher Education directly represent the segmental boards. This segmental presence has compromised the Board's ability to pursue objectively the tasks of delineating functions, allocating responsibility and autonomy, and establishing efficient and effective coordination.

The Board's limited ability to take positions and give policy advice is further weakened by the absence of sufficient connection between its budget review role and that of the Executive Office of Educational Affairs.

Rational budget and program actions require reliable data. The Board of Higher Education has been in an excellent position to add a substantive dimension to the inadequate system for state higher education budget development by carrying out its responsibility to collect and maintain relevant data. It has failed to do this. Its past budget recommendations have not been based on data or programs and outputs. Instead, the Board has arrived at its recommendations through incremental budgeting techniques which assume the validity of current programs and costs. Such superficial budget review provides no useful information or guidance to the Executive or the Legislature. In fact, the Board did not conduct a budget review for

FY1978, nor has it taken action to develop a comprehensive data base that will keep up to date in a systematic and reliable format the statistical characteristics of each public higher education institution in the Commonwealth.

The Board has not asserted authority to review and evaluate existing programs, a significant weakness in view of the problems posed by program duplication within the system. Its exercise of authority to review new programs and degrees has been limited by the charters of the segments and by its own inaction. Each of the segments has a charter which defines the extent of its program and degree-granting authority. These vary but each stipulates that its authority shall "be subject to" or not be "inconsistent with" the determination of the Board delineating functions and programs for institutions. Because the Board has not established a comprehensive delineation of functions and programs, the full meaning of this language has not been tested. In some cases, then, institutions bypass the Board and establish new degrees and programs by unilateral action, which the Board of Higher Education has not shown the ability or willingness to challenge. In addition, because the Board has failed to establish written criteria identifying state concerns, the majority of new degrees and programs which do go before the Board are reviewed only on the most limited grounds.

There is recognition that the state requires a strengthened coordinating agency with mandates that reflect today's requirements and with clear authority in planning and program approval to exercise these mandates. The Board itself has realized this need in submitting

legislation for the last two years to reform itself and, ultimately, in supporting Governor Dukakis' proposal (House 5756) to establish a new Board of Overseers for Massachusetts' colleges and universities. That bill is still pending. It is hoped that a joint study committee composed of legislative and executive representatives will be established during the current legislative session, and that it will recommend a statutory strengthening of the higher education coordination function. Until this occurs, the Board should be encouraged to assert fully its present statutory authority, giving priority to the development of the data base, program plan and written criteria that are needed for rational delineation of functions and programs among the thirty state institutions of higher education.

B. DIRECTION AND MANAGEMENT

Boards of trustees govern their institutions by making policy and by appointing executives to implement policy and manage operations. Lacking strong statewide coordination and planning, each of the five governing boards operates as an essentially self-contained system linked to state government at a limited number of points.

One major link to state government is the trustees who are appointed by the Governor to staggered terms that differ in length from segment to segment — from three years at the University of Lowell to seven years at the University of Massachusetts. Another critical link is the amount and structure of appropriations. Appropriations are made to eighty-four line item accounts for

restricted purposes. The major portion of these appropriations cannot be shifted among campuses or functions. Freedom in making salary decisions is also somewhat constrained. Beginning this year, basic salary rates and merit increases are either governed or led by the statutory collective bargaining process which requires gubernatorial and legislative approval. Standard state audit, accounting and reporting requirements impose additional constraints.

Generally, however, the absence of strong statewide coordinating capacity, has resulted in disparities, inequities, and duplications within and across segmental operations that make no sense educationally or economically. Each of the governing boards has sufficient autonomy and authority to act on its own problems. Each can reform management structure and practices, define new tenure policy, redefine educational missions, overhaul program offerings and revise admissions policies. At present, however, there are very few incentives to do so and no guarantee that such self-reform, which always produces internal stress and dislocation, will be in the long-range interest of the segment. There is no question that action is needed to address the disparities and inefficiencies that now exist in governance and management.

Organization

Control and management of the higher education segments rests at two points: The trustees and the executive staff. Ultimate responsibility rests with the trustees. The ambit of control varies among segments, from the boards of the University of Lowell and

Southeastern Massachusetts University which govern single institutions to the Board of Regional Community Colleges which governs fifteen. At the executive staff level, there are wide variances in organization. Each institution is managed at the campus level by an executive officer, with the title of Chancellor at the three University of Massachusetts campuses and President at the other twenty-seven institutions. Working for each executive officer is a hierarchy of administrators, including vice presidents, deans, provosts, vice chancellors, and various administrative assistants. In addition, the three multi-campus segments have central offices, each with its own executive officer, intervening between the trustees and the campuses. Each systemwide office has its own corps of administrators, including vice presidents, executive directors, directors, associate directors, staff associates, and various administrative assistants. Trustee appointments of these staff, and of faculty and other professional personnel, are exempt from both the standard state personnel and fiscal approval process and from civil service procedures.

Executive Management

Historically in Massachusetts, as elsewhere, college and university presidents have usually come to their appointments through faculty careers. They have presented credentials similar to those held by tenured faculty members, augmented by some academic administrative experience. Most presidents in the Massachusetts system possess earned doctorates and many have served as senior faculty members and administrative

officers in other colleges. Few have top-level managerial experience outside an academic setting. The rationale that provides the basis for the dependence upon academic experience has been the traditional unwillingness of faculty members to "accept" as a president a person whom they could not regard as an academic peer. There have been a few exceptions, some of them notable, but on the whole the concept "first among equals" has dominated the process of presidential selection.

Governing boards, as they face the selection of top management, should be cognizant that, just as priorities change in business, government and industry, so they change in education. In the 1950's and for part of the 1960's, universities and colleges needed to grow, and presidents who could manage growth were needed. In the late 1960's when campuses were cleft by dissent, boards chose leaders in whom both students and faculty could have confidence. As the 1970's rapidly approach 1980, presidents will be needed who can manage to juggle priorities, to live with change and direct it constructively, and to retrench without loss of quality.

Moreover, the state lags in equality of access to management positions. There are no female presidents, chancellors, or provosts, and only a handful of female deans. While blacks are now somewhat better represented in the top leadership positions, they continue to be significantly under-represented in other management ranks across the system.

Presidents, and other executives and administrators, tend to have de facto tenure under which the sole cause for dismissal is

clear demonstration of incompetence or legally questionable behavior. Administrative tenure is neither necessary nor desirable. Public institutions should have the same degree of flexibility in assessing leadership effectiveness as private institutions require. Executives should hold term appointments and be subject to periodic objective evaluations by their boards, faculties and their student bodies. Such a practice of continuing assessment fosters orderly change. It allows trustees to ask consistently the questions which are too often posed only at changes of administration. The chance to select a new chief executive is the best absolute opportunity to assess and change direction, but since the average length of presidential tenure in Massachusetts institutions is about seven years, that opportunity comes too infrequently to be the major tool for examining such recurring concerns as organizational structure and effectiveness of administration.

Salaries

Inconsistencies across the entire system in percentage of budget allocated to administration and percentage of budget allocated to instruction suggest that no coherent policy or set of policies governs the salary practices of Massachusetts public colleges and universities. There is no uniformity, consistency or logic in the schedules by which we compensate those who administer or teach in our institutions.

Inequities and the absence of coherent, system-wide policies that should take into account differences in institutional size and

mission are nowhere so clearly demonstrated as in the salary schedules. Salaries for institutional presidents range from \$50,419 to \$36,863, and these salaries bear little relationship to the size or complexity of the institution. Thus the president of the University of Massachusetts, with three campuses and a total enrollment of nearly 30,000 students, earns \$50,419 while the average state college presidential salary is \$40,887, in a system where, except for the specialized institutions, the enrollments range from 2,109 to 5,360 students in essentially an undergraduate curriculum only. Similarly, the average community college presidential salary is \$38,538, and enrollments range from 599 to 3,289 in a two-year curriculum.

Top faculty salaries also show significant variation among segments. The average full professor's salary at the University of Massachusetts at Amherst is \$27,000; at the State Colleges, approximately \$24,700; and at the Community Colleges, \$18,500. Average faculty salaries, without regard to rank, are approximately \$16,000 at the State Colleges and \$13,500 at the Community Colleges. Thus faculty salaries seem to reflect an institution's size and complexity, while presidential salaries do not.

The system as a whole rewards administrators better than faculty. One example is the position of the assistant to the president in the community colleges. The low end of the scale, \$13,988, compares to the average community college faculty salary, and to the better paid assistant and associate professors' salaries. At the top end of the scale the figure of \$24,011 exceeds the salary paid most full professors throughout the community college system. The only

perceptible logic in the salary ranges of assistants to presidents lies in the fact that, with one exception, the high salaries are paid to men and the low salaries to women.

The ratio of administration to faculty members appears unreasonably high in most Massachusetts public institutions, ranging from a low of 1:6 to a high of 1:3. There are also significant differences in the percentages of total budget allocated to administration and faculty. At the University of Lowell nearly twenty-five percent of the personnel budget goes to administrative salaries; at Southeastern Massachusetts University, nineteen percent is devoted to administration and eighty-one percent to faculty. Within the state colleges, the range runs from sixty-one percent faculty/thirty-nine percent administration to eighty-five percent faculty/fourteen percent administration.

Tenure

Tenure represents a significant obstacle to change in Commonwealth institutions. Despite their relative youth, Massachusetts public colleges and universities have tenured nearly sixty-nine percent of their faculties, compared to a national average for public institutions of sixty percent. According to recent reports, the percentage of tenured faculty ranges from a low of thirty-three percent at the recently established Medical School to a high of eighty percent at Worcester State College. Of the eight non-specialized state colleges, all but one have tenured faculty exceeding sixty-five percent. At the youthful community college

system, four exceed sixty-five percent and, of the remaining eleven, at least five exceed sixty percent. In FY1978, the University of Massachusetts at Boston will reach fifty-four percent but Amherst will have sixty-six percent of its faculty on tenure. Lowell, largely in consequence of its creation from two long-established institutions, approaches eighty percent.

Most tenured faculty members are in their 30's and 40's. Thus the Commonwealth faces twenty-five to thirty-five years in which, even if tenure were to be frozen or abolished its institutions of higher education would essentially be staffed by the same people who are currently in the faculties. This condition was predicted by the Carnegie Commission report in 1973 which estimated that by the year 2000, "the '60's faculty would be the largest single seniority block in faculty councils".

The prognosis for flexibility, let alone for change, is grim indeed unless policies are adopted and practices employed to reduce the number of tenured faculty in public institutions in Massachusetts and, where possible, to institute faculty development programs to assure the greatest possible contribution from this bloc of experienced teachers and the largest possible return from such high fixed faculty costs. The Commonwealth should attempt to reduce the overall percentage of tenured faculty to no more than fifty-two percent, or approximately the national average for all private higher education, to save the system from virtual paralysis by 1985. Attrition, early retirement incentives, and reassignment

to administrative vacancies where appropriate (with tenure not transferable) are mechanisms which can reduce the number of tenured faculty. No tenure should be automatic, or virtually automatic, at the expiration of a fixed number of years of service. In general, unless an institution has arrived at a point where the percentage of tenured positions is approaching fifty percent, boards should grant renewable contracts of varying length from annual appointments for new faculty members to longer term contracts for senior faculty members. But tenure should be reserved for full professors only and promotion to full professor should depend upon vigorous evaluation by explicit criteria.

Planning

Even where efforts are being made to plan for the future, those efforts continue to reflect an apparent insensitivity to the need for coordination with other segments of the higher education system. The recent draft "First Stage Academic Plan" of the University of Massachusetts at Amherst is a case in point.

An analysis of the plan reveals certain obvious shortcomings. It emphasized, for instance, undergraduate professional education without a recognition that this goal might be more effectively served by or in cooperation with the state and community colleges.

It emphasizes student demand, historically an undependable basis for planning because it is essentially short-range. Recent educational trends show pendulum-like swings in student enrollments which, if followed, would cause faculties to live in a state of near-chaos. Ten years ago, for example, student demand and national

projections of need were calling for greatly expanded medical training. The reality turns out to be that today the nation does not need and cannot afford more doctors trained in specialized medicine; what it needs instead is greatly expanded training of primary care physicians.

Similarly, the study of the traditionally defined liberal arts has steadily declined as an area of student choice. For the University to undermine in its response to student demand its liberal arts faculties would be an act of denial of the central purpose of a university: the preservation of knowledge in established areas and the development of knowledge in new fields.

C. MISSION, PROGRAMS AND DEGREES

"Mission" is the term traditionally used to define the role of a college or university. Mission has three elements: teaching, research, and public service. Of these, teaching, which is defined largely by degrees and academic programs offered, is the most important to the general public interest. This section looks closely at the matter of programs and degrees.

Programmatic duplication and inefficiencies are evident throughout the public higher education system in Massachusetts. The central problem is the lack of a statewide mechanism for asking the most basic question about mission. How can each of the state's public higher education segments and individual institutions best serve the Commonwealth? What type and number of programs and student places should the state support? In what part or parts of the state

and under which segment's or institution's control can such programs be placed to assure the best educational and economic purpose? Responses must fully serve the interests of the state, its students, its public colleges and universities, and its business, labor and industry. The method of seeking responses requires thoroughgoing change: placement of effective coordination and planning authority in a single statewide agency; change to a regionally based system of governance; and creative, good faith efforts of boards of trustees to develop the promise of the institutions under their control.

Size

There are thirty campuses or institutions servicing about 98,000 full-time equivalent (FTE) students. About 21,300 of these FTE students are at the Amherst campus of the University of Massachusetts; another 7,055 are enrolled at the University's Boston campus, and about 300 students are at the University's Medical School in Worcester. The University of Lowell serves about 6,850 FTE students. Southeastern Massachusetts University serves about 4,850. Under the Board of Regional Community Colleges, fifteen institutions serve a total of approximately 28,100 FTE students, ranging in number of FTE student enrollments per institution from about 600 to 3,300. Under the Massachusetts State Colleges Board of Trustees, ten institutions (including the Massachusetts College of Art and the Massachusetts Maritime Academy) serve in the aggregate about 30,100 FTE students and range in number of FTE student enrollments per institution from about 830 to 4,360.

There exists no overall consistent relationship of scale to mission. For example, Boston State College is nearly as large as the University of Lowell, and is larger than its neighbor, the University of Massachusetts at Boston. Salem State College is larger than Southeastern Massachusetts University, which is less than 500 FTE students larger than Bridgewater, its closest public four-year college neighbor.

Moreover, at the other end of the college scale, North Adams, with an FTE enrollment of about 1,900, is smaller than nearly half of the community colleges. These facts call into question the way in which we use the term "university", a word which has traditionally implied a gathering together of a sufficiently broad base of students and resources to offer a range and depth of academic choice that would not be available at the college level.

Price and Cost

Price of attendance offers little differentiation. Tuition costs for residents range from \$900 annually at the Medical School to \$300 at the community colleges, a price spread that in no way accounts for the differences in net lifetime economic value represented by these two ends of the spectrum.

Per student costs are traditionally defined for public institutions as equal to the operating budget appropriation divided by the number of full-time equivalent students. Using this measure, per student costs in Massachusetts vary considerably: from about \$45,300 at the medical school (the medical school appropriation plus the \$3.5 million net state appropriation in support of the

teaching hospital's operating budget), through an average of \$2,880 for the four university campuses, to \$1,898 for the ten state colleges to \$1,481 for the fifteen community colleges.

There are cost differentiations within segments and among similar institutions. Some, like that between Amherst and the other three university campuses, are generally related to differing degrees of emphasis given to higher cost types of programs at the undergraduate and graduate levels of instruction. In other cases, as in the difference in per student costs between the University of Massachusetts at Boston and the University of Lowell on the one hand and Southeastern Massachusetts University on the other, there is no apparent rationale beyond the historical fact that certain institutions have been more successful than others in gaining funding support.

For both state colleges and community colleges there are cost differentiations among institutions with similar program mixes that are not given explicit rationale within existing budget procedures. For example, estimated FY77 per student costs for state colleges with a general curriculum range from \$2,225 at Westfield to \$1,711 at North Adams, and for comparable community colleges from \$1,865 at Greenfield to \$1,268 at Bunker Hill.

Various reasons are given for these cost differentiations, and some are relevant in particular cases: the higher costs of small scale institutions, the higher salary costs of more senior faculty, the varying costs of maintenance and heating in different physical plants. Others, though rational, have the quality of simple

assertions which are not adequately tested: the higher costs of administering or equipping certain programs, the high level of support needs of particular students. The rationales given are suggestive rather than compelling because there exists no standard, consistent, and quantitative procedure for comparative cost analysis of like programs or for explicit, precise definition of the acceptable cost differences among dissimilar ones. Without first defining touchstones for cost, the essential issues of quality and productivity will never be addressed. This is discussed in a separate section on budget issues.

Regional Identity and Service

While the majority of our institutions — three of the four university campuses, eight of the ten state colleges, and all of the fifteen community colleges — have largely regional identities, there exists no working definition of the proper balance between regional and statewide service. Cape Cod Community College, for example, enrolls a significant number of Greater Boston residents, and, in fact, draws some students from as far away as Springfield and Holyoke. North Adams State College, which does not differ markedly in curriculum from other state colleges, draws heavily from Eastern Massachusetts. There is also considerable interchange between the Lowell and Southeastern Massachusetts regions.

Programs are duplicated within regions as well as across them, within segments as well as among them. The state colleges serving the Central Massachusetts regions — Fitchburg, Framingham and

Worcester — all have major education programs, totalling over 1,700 undergraduate spaces in FY1976. While Fitchburg has particular concentrations in industrial arts and special education, each of the schools had over 300 spaces devoted to elementary education, for a regional total of nearly 1,250 spaces. Early childhood education enrollments ranged from about 100 to 300 at each, for a regional total of over 620 places. Additionally, both Worcester and Fitchburg have substantial nursing programs, totalling over 630 spaces in FY1976.

There is no concrete definition of the community service role of an institution. The total effect of community service may be subtle and difficult to judge, but it must mean more than the economic benefits that come from the institution's presence, and it must entail more than continuing education opportunities, which are priced at a higher rate than day school courses. Community service is an integral part of academic mission and an implicit component of the budget appropriation. It would thus seem right to require institutions to establish and report progress toward community service goals, just as it is necessary to identify the cost, efficiency, and productivity elements associated with a given course of instruction.

Degrees and Programs

The levels of degrees awarded also reflect major inconsistencies within the system. The community colleges offer only associate degrees, based on the satisfactory completion of two years of

college-level education. The state colleges primarily offer bachelor of arts and bachelor of science degrees based on four years of college work, and also award about 2,000 master's degrees each year. In FY1976, the University of Massachusetts at Boston awarded twenty-two master's degrees and Southeastern Massachusetts University awarded thirty-four master's degrees. The University of Lowell, otherwise similar to the University of Massachusetts at Boston and Southeastern Massachusetts University, awarded in FY1976 about 200 master's degrees and eight doctorates. The University of Massachusetts at Amherst offers the full range of graduate degrees, awarding 1000 master's degrees and 334 doctorates in FY1976.

On the following pages are charts listing the FY1976 graduate degrees granted by the state colleges and universities, and FY1976 enrollments for all institutions with graduate programs.

A review of graduate degrees and enrollment for FY1976 shows how existing duplication and overlapping are producing ineffectiveness and dispersion of resources. There are seven graduate biology programs which were, except at Amherst, of inadequate scale and averaged a full-time enrollment of under eight students in FY1976. Two of the programs, Bridgewater with four FTE students and Southeastern Massachusetts University with nineteen FTE students, are geographically close. Graduate business degrees were awarded by three institutions. Southeastern Massachusetts University awarded one graduate business degree. Southeastern Massachusetts University also shows one full-time graduate education student enrolled, close by Bridgewater which had a graduate education enrollment of twenty-three

FISCAL 1976
GRADUATE
DEGREES
AWARDED

	BOSTON STATE	BRIDGEWATER STATE	FITCHBURG STATE	FRAMINGHAM STATE	MASS COLLEGE OF ART	NORTH ADAMS STATE	SALEM STATE	WESTFIELD STATE	WORCESTER STATE	SMU	LOWELL UNIVERSITY	UMASS AMHERST	UMASS BOSTON	
AGRICULTURE												92		92 AGRICULTURE
ARCHITECTURE												49		49 ARCHITECTURE
BIOLOGICAL SCIENCE		9		4					2	4		63		82 BIOLOGICAL SCIENCE
BUSINESS & MANAGEMENT										1	5	172		178 BUSINESS & MANAGEMENT
COMMUNICATIONS		10										23		33 COMMUNICATION
COMPUTER												14		14 COMPUTER
EDUCATION	503	218	253	72	51	76	188	136	193		74	321		2085 EDUCATION
ENGINEERING										5	62	143		210 ENGINEERING
FINE & APPLIED ARTS		5								5		35		45 FINE & APPLIED ARTS
FOREIGN LANGUAGES	23	3								9		31		66 FOREIGN LANGUAGES
HEALTH PROFESSIONS										4		56		60 HEALTH PROFESSIONS
HOME ECONOMICS				35								7		42 HOME ECONOMICS
LETTERS	26	8	6	10			18	12				71	17	168 LETTERS
LIBRARY SCIENCE		16												16 LIBRARY SCIENCE
MATH	6	15		5			4			2		9	5	46 MATH
PHYSICAL SCIENCE		12					3				62	60		141 PHYSICAL SCIENCE
PSYCHOLOGY	20									4		55		75 PSYCHOLOGY
PUBLIC AFFAIRS	10											22		32 PUBLIC AFFAIRS
SOCIAL SCIENCE	33	31		7			39					97		207 SOCIAL SCIENCE
INTERDISCIPLINARY												22		22 INTERDISCIPLINARY
TOTAL	621	327	259	133	51	76	252	148	195	34	203	1342	22	3663

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GRADUATE ENROLLMENT
FALL 1975

36	
GRADUATE ENROLLMENT FALL 1975	
U. MASS. AMHERST	AGRICULTURE 139 129
	ARCHITECTURE & DESIGN 82 20
	AREA STUDIES 6 12
	BIOLOGY 135 78
	BUSINESS & MANAGEMENT 337 127
	COMMUNICATIONS 71 36
	COMPUTER & INFORMATION 50 25
	EDUCATION 503 781
	ENGINEERING 218 146
	FINE & APPLIED ART 90 36
	FOREIGN LANGUAGES 53 92
	HEALTH PROFESSIONS 104 50
	HOME ECONOMICS 5 5
	LETTERS 143 175
	MATHEMATICS 37 17
	PHYSICAL SCIENCES 120 121
	PSYCHOLOGY 115 76
	PUBLIC AFFAIRS 2 9
	SOCIAL SERVICES 185 247
	INTERDISCIPLINARY
	TOTAL 2,395 2,182
U. MASS. BOSTON	6 0
LOWELL UNIVERSITY	22 8
	24 13
	8 58
	13 459
	101 273
	16 46
	1 11
	8 10
	10 114
	52 40
	34 40
SMU	19 9
	1 0
	1 11
	8 10
	0 4
	5 6
	43 0
	246 1,011

NOTE: NUMERATOR OF FRACTION INDICATES FULL TIME ENROLLMENT.
DENOMINATOR OF FRACTION INDICATES PART TIME ENROLLMENT.

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FALL 1975
GRADUATE
ENROLLMENT

	AREA STUDIES	BIOLOGY	BUSINESS & MANAGEMENT	EDUCATION	FINE ARTS	FOREIGN LANGUAGES	HEALTH PROFESSIONS	HOME ECONOMICS	LETTERS	LIBRARY ECIENCE	MATHEMATICS	PHYSICAL SCIENCES	PSYCHOLOGY	PUBLIC AFFAIRS	SOCIAL SCIENCES	THEOLOGY	INTERDISCIPLINAR	TOTAL
BOSTON STATE				$\frac{628}{529}$					$\frac{61}{68}$			$\frac{10}{8}$		$\frac{32}{28}$	$\frac{38}{29}$	$\frac{2}{2}$	$\frac{11}{8}$	$\frac{782}{672}$
BRIDGEWATER STATE		$\frac{4}{22}$		$\frac{23}{531}$	$\frac{0}{16}$	$\frac{0}{8}$			$\frac{3}{29}$	$\frac{5}{34}$	$\frac{3}{24}$	$\frac{1}{19}$			$\frac{10}{55}$		$\frac{4}{16}$	$\frac{53}{754}$
FITCHBURG				$\frac{0}{629}$					$\frac{0}{13}$									$\frac{0}{642}$
FRAMINGHAM STATE	$\frac{6}{10}$	$\frac{3}{25}$		$\frac{10}{257}$				$\frac{23}{76}$	$\frac{5}{22}$		$\frac{2}{19}$				$\frac{0}{11}$			$\frac{49}{420}$
MASS COLLEGE ART				$\frac{22}{42}$	$\frac{19}{0}$													$\frac{41}{42}$
NORTH ADAMS				$\frac{0}{82}$					$\frac{0}{9}$		$\frac{0}{3}$				$\frac{0}{7}$			$\frac{0}{101}$
SALEM STATE				$\frac{7}{460}$					$\frac{3}{42}$	$\frac{0}{5}$	$\frac{0}{17}$	$\frac{0}{3}$			$\frac{4}{103}$			$\frac{14}{630}$
WESTFIELD STATE				$\frac{0}{315}$					$\frac{0}{47}$									$\frac{0}{362}$
WORCESTER STATE				$\frac{0}{300}$														$\frac{0}{300}$

NOTE: NUMERATOR OF FRACTION INDICATES FULL TIME ENROLLMENT.

DENOMINATOR OF FRACTION INDICATES PART TIME ENROLLMENT.

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FTE and 531 part-time students. Both institutions also have graduate fine arts programs, and each awarded five master's degrees in FY1976. On the other hand, Massachusetts College of Art, the state's specialized fine arts school, awarded fifty-one master's degrees in art education, but none in fine arts that year. The state supports seven graduate programs in the physical sciences. Two are large scale, at Lowell and Amherst. The other five, at the University of Massachusetts at Boston, Southeastern Massachusetts University, Bridgewater, Salem and Boston State colleges, had an average enrollment of fewer than five full-time graduate students and awarded nineteen master's degrees among them in FY1976.

Total headcount graduate enrollment was approximately 11,700 in FY1976, 4,600 full-time. Eleven hundred full-time graduate students were enrolled in education programs, all but seventy-five at Amherst and Boston State. Almost 4,400 part-time graduate education students were enrolled in eleven institutions, 3,200 of them in the state colleges. Four of the state colleges offering graduate education degrees — Fitchburg, North Adams, Westfield and Worcester — have no full-time graduate students.

Aside from Amherst, Boston State, and Lowell, graduate education is largely a part-time or continuing education program. These three institutions account for 4,300 or ninety-three percent of the 4,600 full-time graduate student spaces. At the other institutions, the small program scale, the general imbalance of full-time and part-time enrollment and the dispersion of resources inevitably raise questions about quality.

Thus, there is significant duplication by program and by region that must be addressed. Significantly, the number of part-time enrollments shows an apparent demand for regional-based degree offerings. The need is to identify relative costs and quality of programs, the requirements for regional access, and the conditions under which the demands of quality instruction can be met.

Program duplication, statewide and by region, at the undergraduate level parallels that of the graduate instruction level, often in the same curriculum areas. Nine state institutions offer degrees in fine or applied arts: Massachusetts College of Art (471), the University of Massachusetts at Boston (165), the University of Lowell (287), Salem State (8), Framingham State (53), Southeastern Massachusetts University (159), Bridgewater State (115), Amherst (384), Westfield State (114). The figures in parenthesis represent full-time upper division enrollments in FY1975, adding up to 1,756 or less than two percent of total system-wide enrollment.

The most obvious example of program overinvestment is in undergraduate training in education. Eleven state institutions offer baccalaureate degrees in education; forty percent of all students in the ten state colleges carry education majors; another twelve percent carry education minors. The public system produced 3,000 undergraduate education degrees in FY1976, the year after a state program was established to assist teachers to find job opportunities in foreign countries.

Even if supply and demand were in balance, there are obvious opportunities for program consolidation. On the following page is a chart which shows the disparities in scale and regional concentration for education programs.

Engineering is another area of significant duplication, with the University of Massachusetts at Amherst, Southeastern Massachusetts University, and the University of Lowell all offering graduate and undergraduate degrees. In FY1975, full-time enrollment was as follows:

	<u>Amherst</u>	<u>Lowell</u>	<u>Southeastern Massachusetts University</u>
Upper Division	646	953	329
Graduate	218	101	1

Another 700 part-time graduate and undergraduate students, over ninety percent of the total, are enrolled at Lowell. The costs of engineering education are high normally, but since a major cost element is in capital equipment which, once bought, can serve large numbers of students, the longer term cost gains from a consolidation of programs would be significant. The state is paying unnecessarily high costs to fund three separate institutions to run six programs which serve less than three percent of the total public enrollment. Under these circumstances, consideration should be given to consolidating all upper division and graduate programs at Lowell. To that end, the curtailment of further admissions at the other institutions is a step to be considered within the FY1979 budget process.

DISCOVERY

LEAD

Another example of significant duplication is nursing education, which also exhibits associated problems of quality, access and professional development. Fourteen of the fifteen community colleges offer the associate's degree, which is sufficient preparation for the registered nurse examination. Four state colleges, the University of Massachusetts at Amherst, Southeastern Massachusetts University, and the University of Lowell offer the bachelor's degree in nursing. This system is producing a disproportionate number of nurses with the associate's degree at a time when the New England region has the lowest percentage of baccalaureate trained nurses of the ten federal regions.

The nursing programs at the community colleges vary in the quality of the scientific training they offer. General science courses are often substituted for the recommended nursing core science curriculum. Partially because of this, transfer from associate's degree to bachelor's degree programs is a complicated and difficult process. In addition, state colleges and universities, contrary to the rational supposition that transfer represents both a benefit to the individual and to the profession, are not giving adequate priority to community college nursing graduates. Without adequate access to bachelor's degree programs, associate's degree nurses will face increasing difficulty in a labor market in which they will be squeezed at one end by the greater cost efficiency of licensed practical nurses and at the other end by more professionally trained bachelor's degree nurses.

D. ACCESS AND COSTS

The price of higher education, including tuition and fees, room and board, books, transportation and miscellaneous other expenses, has risen sharply in the 1970's. The average price nationwide for resident students at four-year public institutions throughout the country rose from about \$1,875 in 1971-1972 to about \$2,790 in 1976-1977, an increase of about \$915. For resident students at four-year private institutions, the average price rose from \$3,171 to \$4,568, an increase of \$1,397.

These rapidly increasing prices can seriously impede access to higher education for individuals and population groups whose incomes lag behind the general rise in the cost of living. Corrective action can take two basic forms: institutional subsidies designed to reduce tuition and fees; or, direct student financial aid designed to reduce for a particular student the price of higher education according to his or her ability to pay.

Through maintenance and capital outlay appropriations, the Commonwealth of Massachusetts now uses general tax revenues to subsidize directly the operation of its public institutions of higher education. The result is significantly lower tuitions than those required to support real costs. These low tuitions constitute the principal difference in price between the public and private sectors of higher education in Massachusetts. The Commonwealth also provides by direct appropriation scholarship and related assistance for students at both public and private institutions. In FY1978,

the Commonwealth appropriated \$21.7 million for these purposes. Tuition waivers for needy students at public institutions are another form of student financial aid supported by the Commonwealth.

Low tuitions, direct scholarship assistance and tuition waivers are important manifestations of the Commonwealth's commitment to overcome economic barriers to student access. But these programs have been developed separately. They have not been knit together into a systematic approach to the problem of access. Nor have they been formulated or managed in a way that takes maximum advantage of federal and private student financial aid programs. They suffer, in some cases, from weak administration. Thus, the Commonwealth fails to use its limited resources in a way that does, in fact, maximize access regardless of ability to pay.

In addition to economic barriers, decisions on admissions standards, program offerings, institutional location, affirmative action, enrollment ceilings and compensatory or remedial assistance have a critical effect on the accessibility of public higher education to Massachusetts residents. For example, public institutions are now located within easy commuting distance of every region in the Commonwealth. But, as has been noted in preceding sections of this paper, their size, mission and range of programs vary greatly, often without any apparent logic. Furthermore, admissions and transfer requirements for each of these institutions have not been systematically coordinated across institutional or segmental lines.

Current Tuition Practice

In FY1960, tuition for state residents enrolled in undergraduate programs at the Commonwealth's public institutions of higher education was \$200 per academic year. By FY1974, this figure had risen to \$300. In FY1976, the state colleges raised tuition to \$500. The University of Massachusetts, the University of Lowell and Southeastern Massachusetts University followed the state colleges with a phased-in tuition increase which will reach \$525 in FY1979. As an integral part of these tuition increases, each of the public universities made a commitment to waive all or part of the tuition for students with unmet financial needs.

These relatively low tuition levels for undergraduate state residents at the public institutions of higher education represent a long-standing practice that has never been accorded permanency, or even recognition, in state statutes. Rather, low tuitions for in-state residents have been maintained by actions of successive governing boards of trustees, to whom a general authority to set tuition levels for state residents has been delegated by the legislature.

In the absence of statutory guidelines, trustees have set tuitions in response to a variety of considerations. The principal consideration appears to have been a general understanding among trustees, legislators, governors, and the public higher education community favoring low tuitions as a means of promoting access. Since a zero tuition level would be most favorable to access, there have been other considerations tending to push tuitions for state

resident undergraduates up to their present levels. Among these have been the sense that more than a token payment should be required of each student as an "earnest" or demonstration of commitment to serious pursuit of higher education; that tuition and fee levels should be equivalent to those of comparable public institutions in other states; that higher tuitions may permit capture by the state of greater amounts of federal student financial aid; that revenues from higher tuitions paid by upper-income students might be used to fund state scholarships for lower or middle-income students; and that public higher education should attempt to maximize its return of revenues to the state treasury in order to minimize its net draw on state tax resources. This latter consideration was particularly evident during the state's recent fiscal crisis, when incentive language was enacted as part of the FY1976 budget appropriation providing for the possibility of greater appropriations for those institutions that returned increased tuition revenues to the state.

Tuitions for graduate students and for out-of-state residents have been set at levels higher than those for undergraduate state residents. In 1960, undergraduate out-of-state residents were charged \$600 at four-year public institutions and \$500 at community colleges. Today, tuitions for out-of-state residents (except for students participating in the New England Regional Student Program) must be at least ninety-five percent of the average cost of instruction per undergraduate student for each institution or segment of institutions, a requirement of the Legislature in the

general appropriation acts for FY1976, FY1977 and FY1978. As a result, in FY1978, undergraduate out-of-state residents will pay a tuition of \$1550 at the University of Massachusetts, \$1409 at the University of Lowell, \$1200 at the state colleges, \$1184 at Southeastern Massachusetts University and \$882 at the community colleges.

Tuitions for graduate, state resident students now range from \$500 for twenty credit hours at the state colleges, to \$670 per academic year at the Boston and Lowell campuses of the University of Massachusetts and at the University of Lowell, to \$900 per academic year at the University of Massachusetts Medical School.

The result of this decentralized approach to tuition policy is a four-tiered system: state residents at the community colleges who are charged \$300 per year; state resident undergraduates of the state colleges and universities who are charged about \$500 per year; state resident graduate students who are charged between \$500 and \$900 per year; and out-of-state residents who are charged between \$882 and \$1550 per year.

Current Student Financial Aid Practice

Each student also faces the costs of fees, room and board, transportation, books, related expenses and deferred income. These other costs appear to be only slightly lower at public institutions than at comparable private institutions. Total required fees range from an average of about \$80 per academic year at the community colleges to an average of \$135 per academic year at the public

universities. The total of all costs to the student, apart from tuition and deferred income, has been calculated by the College Entrance Examination Board to average \$3,105 per academic year at the public universities for undergraduates residing on campus and \$2,005 per academic year at the community colleges for undergraduate commuters.

Student financial aid to defray these costs stems directly or indirectly from four major sources: federal, state, institutional and private. Programs take the form of direct grants, loans with special deferred-payment or low-interest provisions, and part-time jobs ("work-study") arranged so as not to conflict with a student's academic schedule. At any one time, a student may be the beneficiary of several different programs of student financial aid. To the extent that there is coordination among these programs, it is provided by student financial aid offices at each institution.

Campus-based student financial aid offices directly manage the following commonwealth-funded programs: the federal College Work Study Program; the federal National Direct Student Loan Program; scholarships at the University of Lowell, Southeastern Massachusetts University, and the University of Massachusetts; aid to disadvantaged students from various racial backgrounds; and tuition waivers. The sum of \$3.6 million has been appropriated by the state for these programs for FY1978. The campus offices also manage the federally-funded Supplemental Educational Opportunity Grant Program, which provided \$10,042,583 in FY1977 for students in public and private

institutions. Awards are made under these programs after consideration of all other aid that may be available to a student.

Many student financial aid programs operate independently of the campus-based student financial aid office. The Board of Higher Education manages the State Scholarship Program, providing \$14,284,720 in FY1978 (a state appropriation of \$12,250,000 and a federal grant of \$2,034,720). These state scholarship awards depend entirely on a calculation of relative financial need that excludes consideration both of differentials in student costs and of other aid that may be available. Twenty-three percent of these state scholarship awards in FY1977 went to students attending the Commonwealth's public institutions of higher education; fifty-nine percent to students attending private institutions within the Commonwealth; and eighteen percent to students attending out-of-state institutions.

The Board of Higher Education also manages a variety of specialized financial aid programs which are funded for FY1978 as follows: \$500,000 for medical, dental and nursing scholarships; \$15,000 for special education scholarships; \$15,000 for children of firefighters or police officers killed in the performance of duty; \$300,000 for merit scholarships; and \$150,000 for consortium scholarships for students pursuing programs in the private sector that are not readily available in the public sector.

Many federally supported programs operate in Massachusetts independently of both the Board of Higher Education and the campus-based student financial aid offices. In FY1977, these were the

Federal Insured Student Loan Program, providing approximately \$10 million for loans; the Higher Education Loan Program, operating pursuant to the federal Guaranteed Student Loan Program and managed by the privately-controlled Massachusetts Higher Education Assistance Corporation, guaranteeing \$43,500,000 of loans; the Basic Educational Opportunity Grant Program, managed by the federal government, providing approximately \$39,884,000 in grants; veterans' programs providing an estimated \$100,000,000 on an entitlement basis independent of financial need; and Social Security programs providing monthly entitlements for children of retired, deceased and disabled workers at the level of approximately \$3,320,000 for June, 1977.

The variety of financial aid programs, supplemented by innumerable scholarships of private origin is exceedingly difficult for even the professional financial aid officer or high school guidance counselor to comprehend. The potential candidate for admission to a higher education institution is likely to find this array of programs impossible to comprehend.

Tuition and Student Financial Aid Policy

In light of the foregoing review of existing tuition and student financial aid practices, it should be clear that enhanced student access, regardless of ability to pay, depends not only on financial aid funding levels and low tuitions, but also on the degree to which the existing programs can be simplified, coordinated and widely publicized.

Proposals to abolish the de facto low tuition policy of the Commonwealth are regularly brought to the Governor and the Legislature.

One such proposal calls for tuition rates to be graduated according to a student's ability to pay so that the lowest income student would be charged no tuition and the highest income student would be charged tuition equal to the institution's per student maintenance cost. Another proposal advocates charging all students a tuition equal to cost, using new tuition revenues for increased scholarship assistance to needy students.

These proposals should be rejected. They would impede access for many reasons. The complicated need determinations that would be required would be administratively burdensome. More importantly, they would add greatly to the confusing array of price factors and administrative procedures that already make access to college extremely difficult for low and middle-income students.

The Commonwealth should have, however, a better articulated policy favoring low tuitions. Decentralized decision-making by five independent trustee boards does not and cannot accomplish this goal. To meet the need for a statewide tuition policy, it is necessary to reassign tuition-setting authority from the segmental governing boards to a central higher education planning and coordinating agency, as has been suggested this year in House Bill 5756.

The development of a statewide policy supporting low, subsidized tuition levels should begin with an appreciation of the differences in requirements for access to the varying levels of academic study.

The first two years of postsecondary education, regardless of program, mark the beginning of students' first explorations into the value of a postsecondary education. It is, therefore, most important at this level of instruction to minimize any burdens which tend to increase the difficulty of attendance for those with a limited ability to pay.

In recognition of this need, the Board of Regional Community Colleges has wisely refrained from raising tuition to the higher levels established by the other segments. The principle of lower tuitions for the first two years should be maintained. The minimal tuition that must be charged at this level of instruction serves as a reminder of the real economic value of, and as a token of student support for, the cost of the educational services provided at these institutions. The revenues produced are important to the state's continuing capacity to support higher education. Such a minimum tuition charge will continue to be required unless population shifts and changing economic conditions permit the Commonwealth to provide universal entitlement to the first two years of postsecondary education similar to the present entitlement to elementary and secondary education.

Under current tuition policies, students in the first two undergraduate years at the state's universities and state colleges now pay approximately \$200 more in tuition than students at the community colleges. Does this make sense in terms of the Commonwealth's commitment to maximizing access and equal opportunity? Arguably, the more selective admissions requirements of these institutions are appropriately matched by a higher "earnest" or tuition requirement.

By this line of reasoning, the presumed greater degree of commitment of these students would mean that they would not be put off by the \$200 differential. But it is not at all clear that this is true. Admissions requirements across institutional and segmental lines have not been systematically articulated. The tentativeness of the commitment of beginning students who have otherwise been prepared for university-level instruction may be just as great, and they may be just as easily deterred by the perceived burden of tuition.

State policy establishing a tuition charge for the first two years of undergraduate instruction that is uniform across all segments and lower than the upper division charge would promote the state's interest in access. Implementation of this policy at no net revenue loss to the Commonwealth will require adjustments in all present tuitions. The governing boards in cooperation with the Secretary of Educational Affairs and the Board of Higher Education should undertake an immediate review of the tuition adjustments that will be required.

In the second two years, or upper level of undergraduate instruction, tuition is appropriately higher — about \$500 at all institutions. At this point, students have experienced two years of undergraduate instruction. They are in a better position to appreciate the value of continued pursuit of a bachelor's or master's degree. While increased tuition at this point does represent an added burden, serious students will demonstrate their

commitment by directly meeting this increased expense or by working with the student financial aid office to solve their problems. At the same time, state policy should continue the substantial subsidy implied by a low tuition to ensure that even the committed student is not barred from continued access by economic needs that are not fully satisfied by financial aid programs. In any event, the differentials in tuition between the state colleges and universities, at the third and fourth years of study, should be eliminated. In FY1979, university tuitions for the upper two years will be \$525 per year; the present state colleges tuition rate of \$500 should be brought up to this same level.

It is necessary to re-evaluate all tuition rates at the graduate levels of instruction. In the professional fields, where the possession of a graduate degree commonly results in higher earning capacity, there is a potential ability to repay the relatively high cost of instruction through future earnings. The medical school, where tuition is \$900, offers the most obvious example. Graduate study in engineering, business and the health sciences may be similarly categorized. While appropriate forms of financial aid must be made available to needy students in these graduate programs, the economic incentives to pursue studies at this level make it less likely that a student will be deterred by the burden of higher tuition charges.

In liberal arts and other graduate programs where there is less direct connection to increased earning potential, the economic

incentives for continued study are not as strong or immediate. For these other graduate programs, tuition levels should be maintained at or only slightly higher than the upper-level undergraduate tuition rate in order to encourage study in these important fields.

The medical school poses a special problem in terms of access and costs. The annual per student subsidy, subtracting the \$900 tuition payment, is about \$44,400. While the students receive this extraordinary subsidy, they are developing a future earning capacity that exceeds that of most Americans. A radically higher tuition is not the answer to this problem of public subsidies providing to individuals economic benefits that are in excess of demonstrable benefits to the general public interest. The needy student would feel the burden much more heavily than the student whose financial resources were sufficient to avoid incurring significant debt. Instead, the state should require contracts of all medical students obligating them to work in state-designated community or public health service jobs for two years after completion of their training. This approach assures equal treatment for all students, while it provides a form of pay-back to the Commonwealth in return for its subsidizing the cost of instruction. The University of Massachusetts Board of Trustees should develop such contracts immediately. In the absence of Board action, legislation should be submitted requiring such a program.

Out-of-state tuition policy needs modification as well. In general, there are useful reasons for providing education at less

than cost to non-residents. These include the needs of a university for a student body that meets high academic standards and reflects diverse experiences and backgrounds, as well as the Commonwealth's commitment to the New England Regional Student Program. There are points, however, at which this policy should be reconsidered. One area is the exemption of the Massachusetts Maritime Academy from the requirement to set out-of-state tuitions at no less than 95% of instructional costs. Graduates of the Massachusetts Maritime Academy receive the highest starting salary among bachelor's degree graduates of any public institution in Massachusetts. According to a New England Board of Higher Education report, the Academy enrolled about eighteen percent out-of-state residents. The effect of the exemption is to subsidize the education of out-of-state residents at the expense of residents. This is of particular concern because of the institution's past failure to enroll women and state resident minority students.

It is not recommended that tuition automatically rise with inflation or, alternatively, be maintained at a fixed percent of the annual per-student maintenance cost. There are too many people whose incomes do not keep pace with inflation. The tuition levels discussed above, however, must be periodically reevaluated both in terms of changing financial aid conditions and general price inflation.

Apart from increased levels of aid, which depend primarily on the expansion of federal grant programs, the greatest opportunity for improved access through student financial aid lies in simplification and more systematic management of aid programs. The current

array of programs baffles the outsider. Leadership must be exercised in order to break through this confusion. At present, the task falls to the Board of Higher Education which administers the state's scholarship program. There is good reason based on past performance to doubt its capacity to execute this task, and the only real solution may lie in a revitalized state planning and coordinating agency.

However, the Board of Higher Education should be encouraged to conduct a thorough review of the student aid situation. This review could lead to better coordination among programs and to the legislative change necessary for effective and equitable utilization of existing aid resources. At a minimum, the catalogues now issued by the state's institutions should include a clearer and more complete presentation of costs and aid opportunities than they do now.

E. HIGHER EDUCATION BUDGETING

In Massachusetts, both the working assumptions and methods of budgeting for higher education are flawed. They obscure real state costs. The effect is to make difficult the development of informed policy decisions and the evaluation of programs.

The standard method of ranking states in the funding of public higher education is to use the amount appropriated to higher education institutions in a state's general budget. For Massachusetts, this results in underestimated support because it does not account for associated items which are budgeted elsewhere.

These other costs include the relatively small amounts represented by workmen's compensation and unemployment insurance costs, which

together add up to more than \$1 million in expenditures in FY1976 on behalf of higher education employees. Much more significant items are health insurance, retirement pensions and capital outlay for buildings and equipment. Such costs are never directly allocated back to the institutional budgets. Furthermore, the accounting records that have been kept for most of these items make precise assignment of costs difficult. However, good estimates are possible. Higher education staff make up about twenty-one percent of the state work force; the state's share of group insurance costs in FY1976 was \$38 million. During the years when former education employees who are now retired began their working careers, 1940-1955, they made up more than seven percent of the state work force; state employee pension expenditures for FY1976 were \$76 million. The cost to the Commonwealth of paying principal and interest in FY1976 for higher education capital outlay bonds outstanding for the 1954-1971 period is estimated at \$55 million.

Together, these other costs added about \$69 million to higher education expenditures in FY1976 representing a hidden level of funding equal to more than \$700 per full-time student.

Higher education budgets also fail to present critical management and policy information with clarity. Under past budget procedures, it has been possible only roughly to identify the program costs of specialized institutions such as the Medical School and the Maritime Academy. It is not possible to differentiate between the costs of liberal arts and occupational programs within the relatively simple

program structure of the community colleges. More difficult is analysis of the many cost differentiations at the university level that result from the various degree levels and programs within the separate schools and colleges of a university.

Budgets are presented, defended and appropriated in line item form — in an accountant's categories of expenditures rather than in a manager's measures of performance. There are no uniform tables of organization for college administrators or for faculty staffing presented for executive or legislative review. Institutions request and receive faculty positions as "professor", "assistant professor" and other ranks with no program or curriculum designation and no standards for distribution among the various ranks. Policies do exist in these areas; they are made by trustees and executives who apply them with the flexibility that characterizes policies made outside of the formal budget process. The weakness of budget-making procedures helps to convert the institutions' properly guaranteed fiscal autonomy into an inappropriate independence from close budgetary analysis.

Institutions also administer significant amounts of non-appropriated funds. These include continuing education tuitions, miscellaneous special revenues, federal grants and contracts and, in some cases, endowment funds. For example, the University of Massachusetts total budget in FY1977 was \$172 million, almost \$65 million above the state appropriation for that year.

While the law requires that the majority of these funds must be managed in a manner consistent with state accounting standards, they

are not integrated into the standard state appropriation process, although they are spent in many cases for functions identical to state appropriated monies. Thus the state review of their use is limited to issues of accounting practice and excludes analysis of productivity and effectiveness.

This is particularly evident in continuing education. With increasing frequency, institutions pursue continuing education programs as a source of discretionary income. The differences between continuing education and day programs are blurring. This has an affect upon access, because continuing education students pay higher prices, and also on state educational and fiscal planning. While the law requires that such programs operate at no cost to the Commonwealth, there exist no standards for: a) describing the direct and indirect costs to the state of furnishing the buildings and other support that make continuing education programs possible; and b) requiring that deposits to the state treasury be made accordingly. Under current budget procedures, such a significant aspect of the educational picture in the state remains free of evaluation.

The inadequacy of higher education budget procedures makes it difficult to use the budget effectively in forming policy. The basic problem is the lack of consistent information needed to arrive at judgments about costs and subsequent evaluations of quality and productivity.

It is necessary to institute a budget which integrates all fund sources and provides cost, resource and productivity data at the

program level, — e.g., not only for a college's baccalaureate program, but also for each of the concentrations within that program.

Without such hard data, statewide budget policy will continue to develop haltingly and without consistency. While executive recommendations to increase program funding in a specific area can be rationally developed with the available information, the lack of common dependable data will make acceptance of these recommendations extremely difficult.

DRAFT
FOR DISCUSSION
PURPOSES ONLY

III. A PROPOSAL FOR REGIONAL ORGANIZATION

The preceding sections of this paper document that the Commonwealth's prime need is for improved coordination in higher education. The need for change in organization is secondary, but the facts clearly show that more rational organization of our public colleges and universities would make the task of coordination significantly easier.

In Massachusetts, there are two major principles of higher education organization. One organizing principle relates to region. This is most evident in the two regional universities. The other principle is organization according to level of instruction. The community college system exemplifies this principle. With the exception of the community colleges and the two regional universities, however, the Commonwealth's higher education segments are not organized in patterns that consistently follow one or both of these principles.

There may be as many ways to organize colleges and universities as there are different parties and interests involved. However, the identity and contributions of the current segments and institutions must be taken into account in considering new forms of organization. The most radical approach is to unify the thirty colleges and universities into essentially one institution with a single board of trustees, leaving to that board ultimate discretion on funding, campus mission, and program assignment and location. This was proposed in a bill filed by the Senate President in 1976. Other

options give greater emphasis either to consistency in level of instruction or to regional identity. All approaches were included for study and recommendation by a new coordinating agency proposed by the Governor in legislation which was also filed in 1976.

A. THE STRENGTHS OF REGIONAL ORGANIZATION

Of the basic directions available, organization by regions under a statewide coordinating board is the most promising.

Regional organization has the following strengths:

1. It locates decision-making close to those most affected.
2. It renews and enhances the role of the voluntary lay trustee by making possible a significant measure of control over institutions that share a common regional identity and purpose.
3. It opens the way for sharing and complementary activity among colleges and universities which, although geographically close, are now effectively shut off from each other by rigid segmental boundaries.
4. It removes the pretext of segmental distinction that is used to rationalize the most obvious kinds of duplication -- essentially similar programs offered by neighboring institutions -- and fosters the consolidation of such programs at a scale of operation that is more effective, provides better education, and maintains access.
5. It increases choice and access for students within their regions by eliminating segmental transfer barriers.
6. It aids the cause of regional equity in resource distribution.
7. It establishes at the local level a relationship between education and regional economic needs and demands, and gives focus to the community service functions of our colleges and universities.

8. It offers a strong structure for integrating the planning of secondary and postsecondary education activities, such as those of the regional vocational schools, to achieve maximum impact and efficiency.
9. It fosters integration of continuing education components into the mainstream of the curriculum, and sets bounds to entrepreneurial expansion that serves narrow institutional interests.

There must be full public review of the merits of a regionally organized system. The discussion that follows outlines the major components of such a system.

B. THE REGIONS AND THEIR INSTITUTIONS

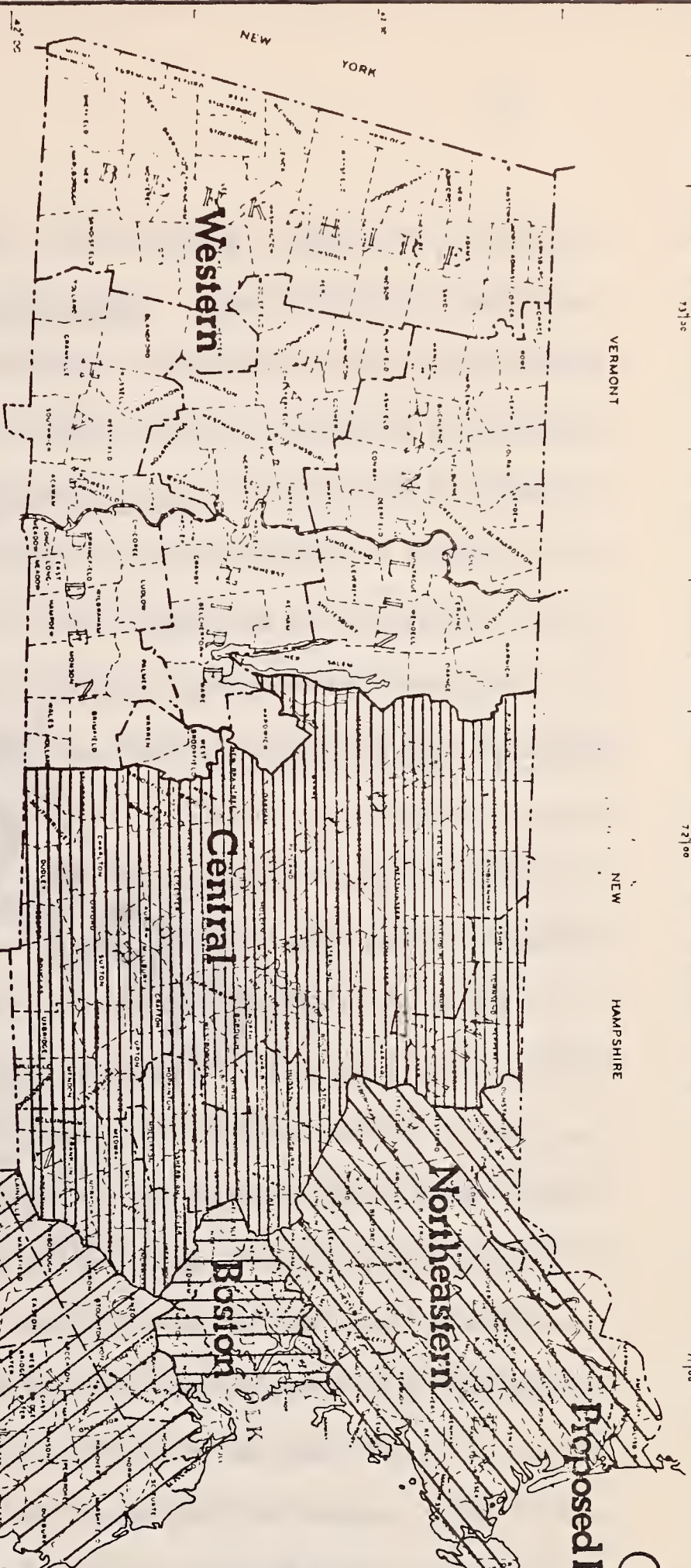
Five geographic regions are identified on the map shown on the next page. With the exception of those of the Boston region, boundary lines are drawn on the basis of present community college attendance patterns. For example, those sending a majority of their students to Massasoit Community College are included in the Southeastern Region, while those sending a majority to Quinsigamond Community College are included in the Central Massachusetts Region. The Boston Region, as an urban center, includes the City of Boston, those suburbs immediately contiguous to the City and the town of Wellesley. The population count for each region is shown on the map.

Grouped within each of these regions are the thirty existing campuses of state-supported higher education. Southeastern Massachusetts has six campuses: Southeastern Massachusetts University, Massachusetts Maritime Academy, Bridgewater State College, Cape Cod Community College, Bristol Community College and Massasoit Community College. Boston has six campuses: the University of Massachusetts at Boston, Massachusetts College of Art, Boston State College, Roxbury

VERMONT

NEW

HAMPSHIRE



Proposed Higher Education Regions

Population Count:

West	804,000
Central	1,032,000
Northeastern	1,367,000
Boston	1,328,000
Southeastern	1,195,000

FTE Enrollment Projections:

West	34,000
Central	13,000
Northeastern	18,000
Boston	18,000
Southeastern	15,000

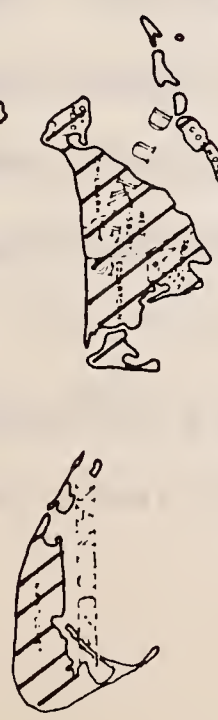
THE COMMONWEALTH OF MASSACHUSETTS



CITIES, TOWNS AND COUNTIES



PROPOSED
COUNTY AND COUNTY
DIVISIONS
FOR DISCUSSION



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Community College, Bunker Hill Community College and Massachusetts Bay Community College. Northeastern Massachusetts has five campuses: the University of Lowell, Salem State College, Northern Essex Community College, North Shore Community College and Middlesex Community College. Central Massachusetts has six campuses: the University of Massachusetts Medical School at Worcester, Worcester State College, Framingham State College, Fitchburg State College, Quinsigamond Community College and Mount Wachusett Community College. Western Massachusetts has seven campuses: the University of Massachusetts at Amherst, Westfield State College, North Adams State College, Holyoke Community College, Springfield Technical Community College, Greenfield Community College and Berkshire Community College.

What is now needed is the development of five regional systems which will emphasize academic excellence and regional service. Each regional system would be governed by a board of trustees with essentially the same powers as present segmental boards possess. Each existing institution would retain its separate identity and its own president, and would be subject to trustee policy-making and to the mandates of a strengthened statewide coordinating agency. The focal point of each region would be its University Center whose president would also serve as the board's chief executive officer. Administrative staff and functions would be concentrated at the university centers.

State colleges and community colleges would be distinguished by their program emphases. The academic mission of the state colleges

would be liberal arts education, with professional or career specialization limited to the upper division. The mission of the community colleges would be a continuation of their present emphasis on providing broad access through a curriculum that offers remedial, vocational, terminal and transfer programs. The university centers would be the academic core of each region. Accordingly, the university centers would be the major providers of specialized curricula for the region, would enroll more upper division than lower division students, and would govern and administer the region's graduate programs.

Standard student assignment and transfer policies would be established to ease movement through each region's institutions and to make full use of the possibilities of cross-registration. Transfer and cross-assignment of faculty would also be fostered to enable those who so wished and were qualified to have the professional benefit of participating in upper division or graduate instruction.

No system can afford complete regionalization, and the proper balance of statewide focus and regional service is delicate and complex. Detailed decisions about regional and statewide missions should be provided by a strong state coordinating agency.

Organization of the thirty colleges and universities into the five regions proposed would provide, however, the opportunity for further specialization and differentiation in areas of program strengths that already exist.

For example, the Southeastern Massachusetts region has, in the University's marine biology program and in the Maritime Academy's transportation and marine engineering programs, a program base for development of specialization in marine science and technology.

The Northeastern region could become an engineering center built around the existing engineering programs at the University of Lowell. In addition, it now has, in programs at Lowell, Salem State, and the three community colleges, a base for a concentration in business and management.

The plan proposes the establishment of a new university in the Central Massachusetts region upon the current base of the Worcester Medical School, and the state colleges of Fitchburg, Worcester and Framingham. Health professions training is the natural primary concentration; Fitchburg and Worcester have significant numbers of students in nursing and dental hygiene programs. Framingham's programs in home economics and dietetics and Fitchburg's program in special education would be complementary to a health training concentration.

At the center of the Western region would be the University of Massachusetts at Amherst, which would retain its status as the state's preeminent academic institution, its land grant university, and the primary provider of doctoral instruction.

At the center of the Eastern region would be the University of Massachusetts at Boston. The regional concentration here would be

a continuation of the current focus on education suited to the needs of the city. The region's institutions would be characterized by service to the non-traditional student through an urban-based and related liberal arts curriculum. A part of that concentration would be a special focus on continuing education and on job retraining, a critical need in the Boston area. In addition, this region has the largest concentration of fine arts majors, at the Massachusetts College of Art and the University of Massachusetts at Boston. It has the potential to develop as the state's center for such instruction.

These basic outlines leave many questions unanswered, particularly about the proper degree of centralization/decentralization of programs that is needed to serve the interests of both quality and access. For example, to meet access demands, each region must offer nursing education. The question, and others about mission and student movement among regions, require a central coordinating board with the power to make the necessary statewide changes.

C. MANAGEMENT, RESOURCES AND QUALITY WITHIN A REGIONAL SYSTEM

Reorganization of the state's public higher education institutions into regional entities will not in itself resolve the issues of management, resources, and quality. Like program assignment and missions, these issues will need to be addressed by a strong statewide coordinating authority and by the governing boards of the regional systems.

Management: Executive Function

The proposed regional system offers the state the opportunity to develop a better functioning management structure by eliminating the present central offices of the state colleges, community colleges and the University of Massachusetts, substituting for them regional management staff at each of the university centers. Through these regional offices, governing boards will be able to plan for and evaluate the goals of the regional units in a close but differentiated configuration. Unlike the present governing boards, they will not be hampered by geographical dispersion and the absence of institutional coordination.

The challenge of effective management will be greater within the proposed regional system. Each president will be responsible not only for the management of the university center but also for the management of the whole and thus must be able to demonstrate a command of the full range of managerial functions. Boards will need to bear in mind that today's successful manager is often a generalist with transferable skills; that such managers may be found on faculties and elsewhere, perhaps in business, very possibly in public service. It is as likely that a non-academic career can produce a good college president as it is that a well-respected senior professor will be unable to perform effectively in the arena of complex institutional management. It is thus entirely possible that the increasingly difficult tasks of leadership will lead to the selection of more candidates from non-traditional career paths.

Search committees should be required to seek the acceptance of their selection criteria by the state coordinating agency to ensure that presidents of regional institutions possess skills and qualities which are clearly in keeping with the missions and programs of the regions. Here as elsewhere throughout the state system, the influence of a strong coordinating agency will help to assure maximum educational effectiveness.

Management: Planning

Second only in importance to the selection of a president is the process by which an institution protects its academic quality by long-range planning. Such planning must provide faculty members with the freedom to pursue new academic and scholarly work without undue constraints, while assuring that students get their full measure of instructional value. The institution must provide faculty members with a reasonable degree of job security while maintaining staffing flexibility to meet changing needs. In respect to both of these issues, the regional system offers attractive possibilities for instructional variety and innovation, for in-service faculty development, and for the staffing flexibility essential in an uncertain period when change will be necessary and growth unlikely.

Long-range planning must be an ongoing process. It depends upon information resources which may not pertain to an individual institution but which do pertain to the state's entire range of educational and manpower needs. As the state coordinating authority fulfills its mandate to engage in statewide master planning, regional

systems will not only have their missions and programs clearly defined, but they will also have access to a data base that will permit them to engage in orderly planning. The existence of institutions of each type within a region will allow management to plan curricula in depth for the region as a whole and thus to allocate faculty and other resources in a way that maximizes their potential.

Management: Tenure

In the Commonwealth's institutions, the percentage of tenured faculty and their relative youth locks some colleges into nearly immovable stances. The concept of tenure has in recent years come under increasing suspicion and attack. Yet, except for those few institutions which never adopted the principle of tenure, no institution has abolished it. For practical reasons, unless a group of comparable institutions across the nation were to act in concert, the abolition of tenure would probably be most devastating upon that institution (or system) which adopted abolition. It seems, therefore, impractical to recommend the abolition of tenure in the Commonwealth, even though, on balance, its disadvantages may outweigh its advantages. Instead, colleges and universities should work toward controlling tenure or reducing it to a reasonable percentage of the faculty where it has become too high.

Under the proposed regional system, the state's overall percentage of tenured faculty will not be altered. Some systems, by virtue of the existence within them of relatively young institutions, will have lower percentages of tenured faculty than others. But few will fall below the established goal of fifty-two percent, the percentage

of tenured faculty in all private higher education institutions throughout the country. The flexibility inherent in the regional unit reduces the difficulty confronting boards and presidents who realize the need to reduce the percentage of tenured faculty members. Boards will need to develop explicit tenure and promotion policies, consistent with the differing requirements of the institutions within each region. The privileges and responsibilities of tenure and the conditions under which it can be granted and revoked must be explicit. Grievance and appeal procedures must be established. Finally, tenure policy must be considered within the context of collective bargaining. It is inevitable that faculty contracts will seek to reinforce and ensure the privileges of seniority.

Resources

Public higher education has tangible and intangible resources representing both an enormous investment by the state and a rich resource for our citizens. These resources, grossly stated, are represented by the buildings -- classrooms, libraries, and laboratories -- of our thirty institutions and by the people who make education possible: the faculties, administrators, and staffs of the higher education system. A large proportion of the cost of these resources are the fixed costs of maintaining buildings, of stocking libraries, of equipping laboratories and of staffing the institutions themselves. Within the constraint of a static economy, a student market that may or may not increase but which will in any event require more financial aid, and a predictable inflation rate of at least five percent per year, the Commonwealth and its institutions

must be imaginative in the ability to develop those resources already available. The likelihood of growth in resources is small but their development is a challenge we cannot afford to ignore.

The regional system offers an attractive alternative to some of the problems raised by increasingly strained resources. The flexibility of staffing afforded by a group of institutions integrated by one governing board permits the assignment of faculty members in keeping with their interests and abilities and with institutional needs. Academic officers must be imaginative in developing in-service programs for the enhancement of the region's overall teaching resources. Although faculty "retraining" presents formidable difficulties, it should be attempted. Interdepartmental and interdisciplinary curricula have proven to be dynamic ways in which to revitalize faculty members. Regional systems offer unparalleled opportunities for such faculty development. These methods, as well as inter-institutional "loans" of faculty members, are some of the ways in which faculties can change and acquire flexibility at relatively low cost while adding to the value of the institution's intellectual capital.

In departments or programs where student demand becomes greater than an individual institution's capacity to staff it, competent faculty members can be transferred from a similar program at another institutional level. Programs at different levels can be combined and integrated to achieve not only curricular depth and cost-effective

instruction but also, through the pooling of faculty members, a more effective use of a region's instructional resources. Where these means fail, deans and presidents should have the freedom and the strength to offer early retirement to those whose usefulness has been diminished. At the very least, deans should be able to provide alternative employment within the region which frees instructional funds for their most productive use.

A further advantage of the regional system lies in the opportunity to create, from existing institutions and faculties, vital and energetic new programs which, during a period of stable budgets and declining enrollments, might not otherwise be achievable. When money is tight and budgets must be cut, painful choices must be made. These can to some extent be minimized by the more effective use of available resources. And the economies to be achieved by pooling the resources of several institutions can make available otherwise unavailable funds for program and faculty development, and for new projects which bring vitality and energy to an institution under fiscal constraint. To develop imaginative programs during a no-growth period is difficult but not impossible. It is more feasible when institutions function within cooperative arrangements such as the regional system provides.

Crucial to the enhancement of resources is the development of new programs which answer state and student needs without compromising academic integrity. As a nation we are facing the obsolescence of

certain fields of study and the birth of several new ones. As developers of new knowledge and new techniques for applying knowledge, our institutions can respond to the state's need for economic development by investigating new fields of study. Examples of new fields are aquaculture with its implications for our food supply; energy conservation and energy development technologies; and programs that teach us how to make the best use of our dwindling resources as well as our one fixed resource: the land. Such programs can best be implemented in an integrated regional system, where basic research can be done at the graduate level and applied at both the graduate and undergraduate level. Students in the community colleges will then be learning the service element of the technology in the environment where the technology itself is being developed and refined. The statewide coordinating board can act imaginatively to establish incentives for regions which improve their performance through integrated planning and program activities.

Quality

There is no uniformity of quality across existing segments and the proposed regional structure offers no panacea for this problem. It does , however, provide the possibility of more stimulating teaching and therefore a more exciting environment for students.

Students in each of the five regions of the state would have access in the first two years to approximately the same programs. It is therefore important to recognize the hazards of standard statewide college curricula and their possibly stultifying effect

upon students who, upon graduation from high school, expect of their first college experience a set of new and broad choices.

Curricula must be designed with an understanding of the problem of reconciling the tensions between access, with its implied uniformity of programs, and the educational value of choice. There must be, however, a curricular core that ensures that all students will acquire basic skills in the critical areas of reading, writing, and mathematics.

Broadly outlined, a region's curriculum would consist of the following elements. The first two years should offer a basic skills core required of all students, with choices in vocational and liberal arts courses constituting the remainder of a students' program. Vocational programs should be geared to marketable skills, particularly those manpower needs that exist within a region. Students choosing the liberal arts associate's degree would have adequate preparation to transfer into the final two years of a four-year institution within the region, or, if a specialty is sought which exists elsewhere, to the final two years of a program at a four-year institution outside the region.

A more serious, and less easily resolved, difficulty is posed by the curriculum of the state colleges. Historically institutions to train teachers for the state's public school system, they have been unable to throw off that image. The paramount need is to develop the state colleges into true liberal arts institutions.

This need calls for major curricular change. It is likely that, on the one hand, the diminishing pool of teaching jobs and, on the other, the stimulus of a college in a larger university environment may drive down the number of students who perceive an education major as either a marketable skill or a desirable preparation for life in a rapidly changing society. In addition, it is possible to reduce the number of education students by limiting, at each state college, the number who are allowed to elect that program.

Nevertheless it will not be easy to transform the state colleges into liberal arts colleges and it is unlikely that it can be achieved within even a five-year period. Here, as elsewhere, a greatly strengthened coordinating agency can exercise an effective program review function, can monitor course and program offerings to see that they are congruent with mission as it has been defined; and can act decisively and effectively to eliminate unnecessary program duplication and programs for which the state's manpower needs indicate there is a small or diminishing need. Major programmatic changes initiated by the coordinating agency will help. Furthermore, they will, by eliminating duplication, free resources of people and dollars to develop new programs. Finally, the close association within the new regional system of many academic programs at different levels should in itself provide the stimulus for innovative and imaginative change.

The most influential element in any grouping of academic institutions, and the most complex, is the university. The regional system proposes that within the configuration of colleges one institution,

the university, would offer those undergraduate and graduate programs that would give the region its special academic focus. Each university center would be a statewide resource as well. At Lowell, for instance, the state would have its technological university; at Amherst would be the state's research university, with programmatic emphasis upon the liberal arts and traditional graduate programs; at Worcester, the university center would be focused broadly on the life sciences, with the schools of medicine and nursing, and doctoral and post-doctoral programs in the life sciences augmenting its purpose; in Southeastern Massachusetts, programs in marine science and technology would characterize the graduate offerings and the undergraduate strength of the university centers; and in Boston, the state urban university, there would be additional emphasis on fine arts and continuing education.

Such organization suggested here offers students in Massachusetts equal opportunity for access to vocational training, liberal arts education, and advanced professional training. Much of this education can be acquired regionally, at a minimum cost to the student. When a student seeks programs not available in the home region, or where a student's great strength or interest may dictate a higher or more sophisticated level of study, access to programs in other regions must be assured. Financial aid programs and admissions policies must be developed accordingly under the overall direction of the statewide coordinating board.

Thus, regional organization provides a starting point for addressing deficiencies and needs. Regional organization will serve the state as well as the student and will balance the public interest in economic manpower effectiveness against the institutional autonomy and traditional values of higher education. Regional organization protects the basic values upon which education is based and offers some advantages which could not otherwise be achieved under present demographic and economic conditions.

All proposals to reorganize higher education are based upon a recognition of its current identified deficiencies and have as their purpose the preservation of those characteristics which have given our institutions their quality. But the long-term result of regional organization can be institutions of unexcelled quality at every level. Public confidence in the value of public higher education depends upon the achievement of this result.

IV. RECOMMENDATIONS

The preceding pages review the strengths and weaknesses of the state's public higher education system. That review looked particularly at the system's capacity to respond creatively to the challenges posed by changes in population and economic conditions over the next two decades. The paper is written as a preliminary working draft to allow broad discussion and consultation. The goal is to develop a higher education planning process which can treat the need for change as an opportunity for excellence and service.

The preceding sections have specifically focused on the need for coordination, regional organization, mission definition, rationalization of programs, development of management potential and rational allocation of budgetary resources. In the main they describe problems and strengths, identifying the direction in which solutions are to be sought rather than specifying particular solutions. The content and logic of the treatment, however, do crystallize into recommendations for immediate action. Those actions can be characterized in three ways: those which allow immediate change through the process of developing the FY1979 budget; those which point out how better coordination and cooperation within the existing statutory structure can lead to important gains; and, finally, those which require statutory change.

Recommendations for action include:

A. COORDINATION

Establish a Strong Central Coordinating Agency

The ultimate and indispensable goal now, as when the Willis-Harrington report was issued, is to establish a strong, objective, and independent coordinating agency for public higher education. The Governor and Legislature must continue to pursue this goal vigorously. The statewide coordinating agency must meet the standards put forward in House 5756, the bill submitted this year by the Governor proposing a new Board of Overseers. The minimal requirements are as follows:

- independent, lay overseers must represent the public interest rather than those of the segments;
- the board must have the mandate to prepare and update a master plan for public higher education;
- the board must have the power to approve or disapprove existing and new academic programs and degrees consistent with the master plan;
- the board must have a forceful role in making budget recommendations to the Governor and the Legislature;
- the board must have the power and responsibility to establish standard information systems to collect and publish data on all aspects of public higher education;
- the board must have the power and responsibility to evaluate all aspects of public higher education, and to review, and recommend changes in existing practices;
- the board must have the responsibility to establish a comprehensive tuition and student fee plan;
- the board must regulate procedures for segmental demonstration of achievement of minimum proficiency levels in basic academic skills by its graduates.

In addition, if regional organization of colleges and universities is implemented, the coordinating agency must be granted the authority to assign missions and programs and make policy for inter-regional activities.

Immediately Strengthen Current Coordination System

Action can be taken before a new coordinating authority is established. The Board of Higher Education should:

- participate in the FY1979 budget development process and make recommendations required by statute on the basis of program and cost priorities;
- undertake an analysis of the state scholarship and financial aid programs and make recommendations for improvements in their organization and management;
- develop written criteria for the approval of new program and degree proposals and for the evaluation of existing programs and degrees;
- establish a functioning system for the regular collection, retention, and dissemination of higher education data.

B. ORGANIZATION

Develop the Regional Model for Higher Education Organization

The regional organization proposed in this paper should be further developed through broad public consultation. With such consultation, the Governor and the Legislature should develop legislation which will establish the basic regional structure and assign to the already proposed Board of Overseers responsibility for making the necessary assignments of mission and program and for establishing policy to coordinate interregional activities. At a minimum, regional organization must:

- establish governing boards under lay control for each of the Commonwealth's major regions;
- provide within each region a full range of instructional levels, from programs at the community college level to graduate instruction, and including a university center, four-year liberal arts colleges and two-year community colleges;

- provide fiscal and administrative autonomy to each of the regional boards;
- establish a regional process for budget development and allocation that is based on the costs and contributions of each campus and level of instruction;
- provide for presidents at each campus and for regional management by the presidents of the university centers;
- establish the base for the development of regional specializations at the upper division and graduate levels and for the organization of academic resources in support of regional economic and service needs.

C. BUDGET

Establish an Adequate Budget System for Higher Education

The budget process must be better used to affect decision-making and planning. The ultimate requirement is a consolidated fund budget that accounts for all fund sources and replaces the subsidiary-based line item appropriation system with a program-based budget showing items of cost, quality and productivity. This in itself requires a major change in statewide budget practice. Such change should include:

- development of means to allocate associated costs such as retirement, insurance and capital outlay to higher education institutions in order to present a full picture of state support and responsibility;
- exploration of the possibility of moving to a two-year budget cycle;
- establishment of a standard and consistent data base in a suitable form for budgetary analysis and comparison.

Halt New Capital Outlay Construction

Except for community colleges in Beverly and Boston, new construction should await development of statewide coordination and master plan capacity. The two excepted projects directly affect access, equity and economic concerns of our older cities.

Support Change Within Existing System by Budgetary Action

The present line item appropriation system is oriented to maintenance rather than to change. In the absence of able coordination and an adequate budget system, the appropriation process does not support the initiatives, adaptations, and revitalization that the state needs. Consideration should be given to creating a competitive grant fund in the FY1979 budget to support activities of colleges and faculties that advance the general principles developed in this paper and approved by the Legislature.

Utilize the FY1979 Budget Development Process to Set Policy

The budget for higher education is largely developed without relation to costs, quality, and productivity. Until an improved budget system is fully implemented, colleges and universities should be required to present, as an integral part of their budget requests, information that makes rational program judgments possible. The required information includes:

- operating budgets for each program unit at each degree level which relate student hours, faculty workload, costs, etc., to a definable product: degrees, courses completed, job placements, transfers;
- an analysis of student residence for each program concentration;
- an analysis of faculty credentials for each program concentration;
- the library and laboratory strengths and weaknesses for each program concentration;
- square footage used for each program concentration;

- student income and minority participation for each program concentration;
- student high school rank and test scores by program concentration;
- job placement record by program by region, and projection of employment opportunities for the succeeding years;
- community service and research goals in quantified measures for each program concentration;
- cost per student by program concentration for each institution.

D. MANAGEMENT

Tenure

The existing level of tenure, now at sixty-eight percent throughout the system, must be reduced to approximately fifty-two percent, the national average for private higher education, if the Commonwealth is to gain flexibility to address the requirements of change. There should be no administrative tenure.

Administration

Each institution must be accountable for demonstrating its achievement of administrative efficiency. This involves:

- removing unnecessary layers of administrative functions;
- establishing efficient ratios of administrators to faculty and students;
- establishing salary equity between administrators and faculty.

Executive Management

Each governing board must select and evaluate executive management on a regular basis on specific criteria established through trustee analysis of each institution's needs.

Collective Bargaining

Collective bargaining must be simplified and made less costly to administer. This requires:

- establishment of a single state colleges bargaining unit;
- use of existing professional competence by trustee designation of the Office of Employee Relations as bargaining agent.

Equity

Institutions must more vigorously pursue affirmative action for employees and students. There must be both significant recruitment and upgrading of faculty salaries and status to remove inequities.

E. FINANCIAL AID AND TUITION

Rationalize Scholarship Functions

Scholarship functions, now spread among various institutions and funding sources, should be integrated into a rational system that maximizes student choice and the effectiveness of state aid. The best system may or may not be consolidated administration of scholarship programs, but a rational analysis of available options and a demonstration of how limited state funds can be multiplied by other funds are necessary first steps towards reform.

Establish Consistent Low Tuition Policy

The state's clear interest is in a low tuition policy that is consistent across segments. Tuition differentials should relate to the level of instruction — i.e., undergraduate lower division, undergraduate upper division, graduate study. They should also relate to the life-long economic benefit attributed to particular

courses of study. The state should give emphasis to reducing price barriers to access at the first two years of postsecondary study.

Specific recommendations following from these principles are:

- establish the same undergraduate tuition scale at all institutions;
- charge lower tuitions for the first two undergraduate years than for the second two;
- require University of Massachusetts Medical School students to agree to do state designated service after training in repayment of the state's subsidy of their education;
- establish higher tuition levels for most professional graduate study than for liberal arts graduate study;
- review out-of-state graduate student tuition rates.

F. PROGRAMS

Review Unnecessary Program Duplication and Inconsistencies

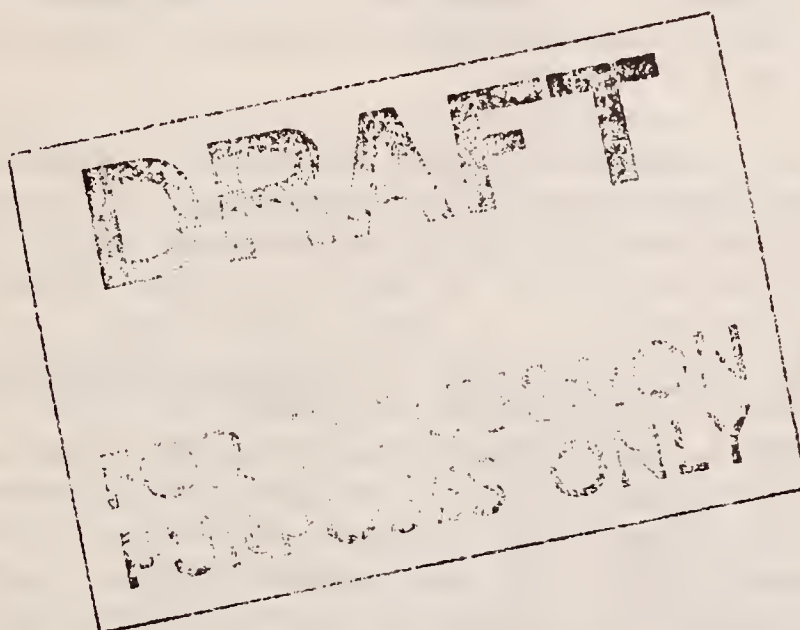
The best long-range remedy is improved coordination and organization but the issue can be addressed now through budgetary action. Nursing, engineering, education and graduate program duplications are the most obvious instances in need of review.

Make Continuing Education an Integral Part of Educational Mission

This may involve state cost-sharing, but the first step is to establish an explicit and mandatory procedure for allocating costs to continuing education revenues. Expansion of continuing education programs for simple revenue purposes, such as is evidenced in the University of Massachusetts' proposed "satellite centers", must be halted.

Develop Capacity to Serve Economic Needs

The state, and particularly the community colleges, must develop a better capacity to serve the Commonwealth's economic needs through regular education programs and through specialized arrangements.



NOTE ON SOURCES

At best, it is extremely difficult to find reliable, uniform and consistent data about higher education, both nationally and at the state level. Massachusetts lacks a central data collection system, and the various agencies that engage in data collection often have information in forms which are not comparable. Differing sources also frequently provide different figures. Information about the independent higher education sector is particularly difficult to acquire and to confirm. Finally, comparability between the public and private sectors is often impossible because of differing formulae for establishing numbers and figures.

In the preparation of this paper we have, wherever possible, attempted to confirm our figures by checking other sources. In cases where such cross-checking has resulted in different sets of figures, we have tried, not always successfully, to explain the difference and to arrive at an educated estimate. In some instances, this has been impossible. For example, The Chronicle of Higher Education, a widely-used and highly respected source of data for all higher education, reported on May 9, 1977 that the average number of tenured faculty members in private institutions is fifty-two percent. Also in May 1977, the Third Annual Report of the Association of American Colleges reported that the average number of tenured faculty in private higher education is fifty-nine percent. In instances of this sort, we have consistently used the lower figure.

The following sources provided most of the facts and figures used in this paper:

Catalogues of Massachusetts public colleges and universities
 College Scholarship Service of the College Entrance Examination Board
 Commonwealth of Massachusetts Academic Planning Project
 (Board of Higher Education Program Inventory), 1977
 Higher Education General Information Survey (HEGIS)
 Individual public education boards, agencies and institutions
 Massachusetts Senate Ways and Means Committee reports
 National Center for Education Statistics (NCES)
 Professional Certification Forms submitted by public
 higher education institutions to the Board of Higher
 Education in conformity with Section 22, Chapter 283
 of the Acts of 1976
The Chronicle of Higher Education

In particular, the following sources provided significant amounts of data for sections of the paper, as follows:

INTRODUCTION:

Governors' Annual Budget Requests
Report of the Special Commission Established to Make an
Investigation and Study Relative to Improving and
Extending Educational Facilities in the Commonwealth,
 House No. 4300, June, 1965
 Senate Ways and Means Committee staff reports and budget
 recommendations

DEMOGRAPHIC AND ECONOMIC CHANGES

Governors' Annual Budget Requests
 New England Board of Higher Education
 Office of State Planning, Commonwealth of Massachusetts
 Senate Ways and Means Committee staff reports and budget
 recommendations

REQUIREMENTS FOR CHANGE

Annual Reports of the Comptroller, Commonwealth of
 Massachusetts
 Association of American Colleges Annual Report, 1977
 Board of Higher Education Program Inventory, 1977
 Catalogues of Massachusetts public colleges and universities
 College and University Personnel Association:
1975-1976 Administrative Compensation Survey
 College Scholarship Service of the College Entrance
 Examination Board
 Data submitted to the Board of Higher Education in
 conformity with Section 22, Chapter 283 of the Acts of 1976
 Division of Employment Security, Massachusetts Department of
 Manpower Affairs
 "Evaluation of Employment Opportunities for Newly Licensed
 Nurses", DHEW, Division of Nursing, 1975
 Governors' Annual Budget Requests
 Senate Ways and Means Committee Reports, 1973-1976
The Chronicle of Higher Education
 University of Massachusetts Summary Operating Budget, 1976-1977

